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THE FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

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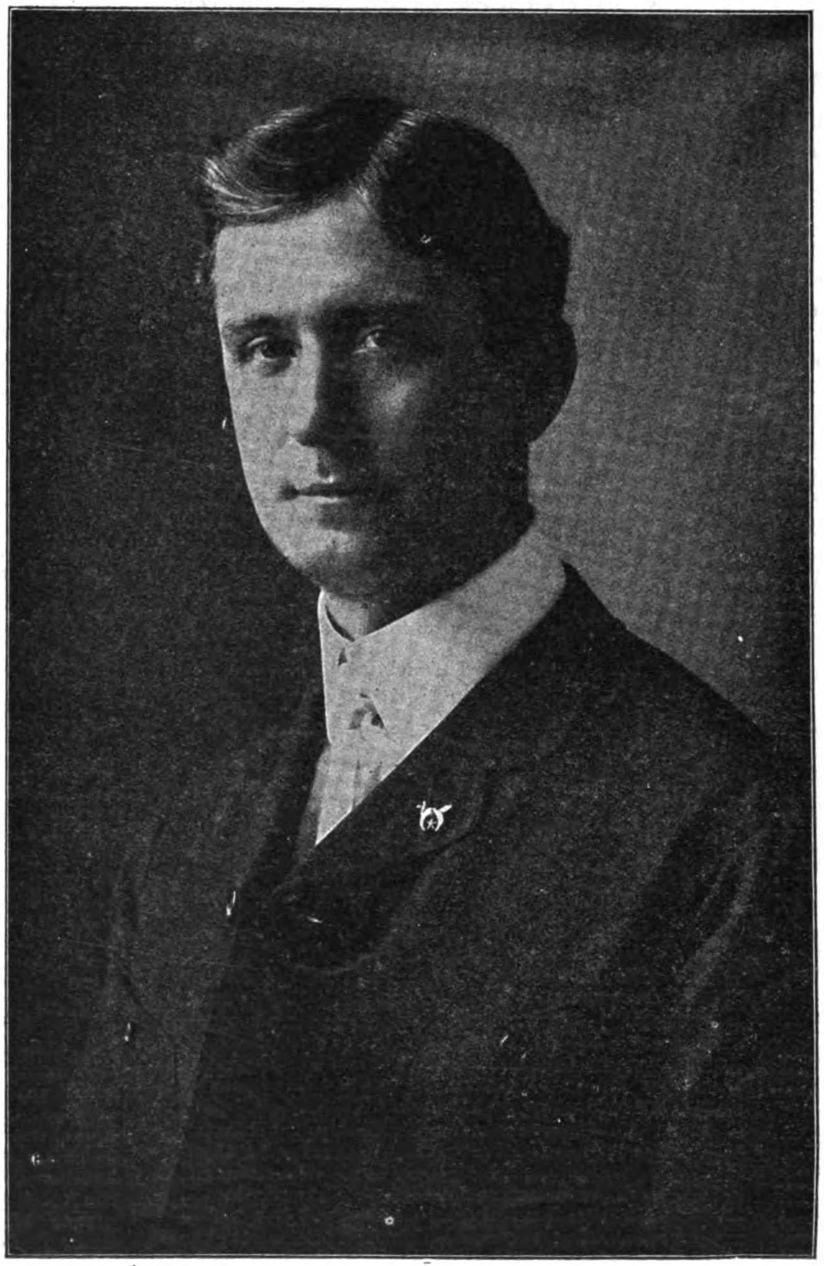

MR. JOHN S. LEECH

Public Printer of the United States of America

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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HOME GOVERNMENTS AND COLONIES

When European governments acquire territory in the Far East they call the acquisition a colony just as soon as there are enough nationals settled there to make a comfortable quorum. Sometimes inducements are made to encourage the settlement of the territory, but generally there are sufficient of the youth with red blood and ambition loyally willing to devote their lives to the expansion of empire and incidentally better their fortunes, where brains and energy are more in demand than capital. Now there are different kinds of colonies. Some are self-governing colonies and, in this day and age when a colony is self-governing, there are not many strings tied to the free expression of the wishes of the colonists. A governor-general is appointed as representative of the imperial government so long as he does not make himself obnoxious to the people. Therefore he is usually the right man in the right place, represents the national spirit and is in sympathy with the colonists.

Then there are the Crown Colonies. The government of these latter is generally marked by crass ignorance and less than no consideration for the wishes of the colonists by the Home Government. Recent events in Hongkong have roused the indignation of the British resident and merchant. It appears that, without warning, the Imperial government decided to wipe out the opium trade in the colony without regard to the enormous losses sure to be involved and without consulting the people of Hongkong or even hinting its purpose. Had Hongkong been a city in central Russia the mandate could not have been more arbitrary. The result was that, while the Hongkong merchants are desirous of having reasonable and well-defined measures inaugurated in co-operation with the Peking government for the suppression of the vice, they voiced their protest against the arbitrary order of the Imperial government through the press and in the following resolution of the Committee of the Hongkong Chamber of Commerce:

"The Committee of the Chamber record their strong protest against any arbitrary orders from the Imperial Government to close immediately the opium divans in Hongkong. The Committee of this Chamber is entirely sympathetic towards all reasonable bona-fide efforts for the mitigation of the abuse of opium, but is of the opinion that any action having for its object the immediate suppression of the sale and use of opium in Hongkong will have serious effects on the economic conditions here and lead to disastrous results to the Colony's prosperity unless similar action is enforced in China. It is, therefore, resolved to request the Hongkong Government to inform the Imperial Government that any hasty and ill-considered action taken in this matter to the detriment of the interests of this Colony will be generally resented, but that on the other hand a policy of gradual reduction similar in its action to the Imperial Government's agreement with India will be loyally supported."

So far as can be learned at this time, no recognition has been accorded the protest, and judging from former experiences, the prospect is not bright for favorable action, notwithstanding the fact that the Governor of Hongkong seems, in a measure, personally in sympathy with the merchants.

An effort was made by Mr. Murray Stewart, the representative of the Chamber of Commerce on the Hongkong Legislative Council, to have a comprehensive resolution adopted at a recent meeting of that body. Just before submitting the resolution Mr. Stewart gave expression to the following pertinent remarks that reflect the controlling sentiment of the colony:

"In this clear contention I lay claim to speak for the whole mercantile community. I speak with the voice of a community united in protesting against the inconsiderate exercise of arbitrary power.

"The inconsiderate exercise of arbitrary power is not to be tolerated without challenge even when exercised in the name of the sovereign people. Englishmen are very ready to repose their trust in despotic formulas, but it is always on the understanding that they shall not be used in a high-handed manner. Whenever there is even a show of the abuse of office there is sure to be trouble.

"Every English statesman ought to know this. No English statesman ought to forget it. We in this Colony humbly aspire to remind one of that fact.

"The voice of Hongkong sounds dimly in London. We realise that only too well. We realise only too well that the voice of this Council can hardly hope to sound at all within the walls of Westminster. But it is our duty to uplift it, hoping against hope, and impelled by a sense of that duty I move:—

"That the members of this Council view with concern the action of His Majesty's Secretary of State for the Colonies in issuing an order affecting the revenue of Hongkong without having previously given sufficient notice to the Colonial Government to admit of the matter being referred to this Council; and desire to record a protest against any steps being taken to carry out the order announced in Parliament on the 6th instant, until His Majesty's Government shall have been fully informed of the prospective financial effect and before this Council shall have been called upon to consider the methods by which it is proposed to re-adjust the burden of taxation."

Applause greeted the reading of the resolution and, before a division was taken, His Excellency the Governor took the floor and while expressing his sympathy with the greater part of the sentiment voiced he did not favor any action at least until the receipt from the Secretary of State for the Colonies of a reply to an explanatory cablegram sent to him by the Governor.

Upon a division the vote stood eight to five against the resolution and the complexion of the vote may be gathered by the following:

For: Messrs. Slade, Stewart, Pollock, Wei Yuk and Dr. Ho Kai—(Five).

Against: Sir Henry Berkeley, the Harbormaster, the Registrar-General, Director of Public Works, the Colonial Treasurer, the Attorney-General, the Colonial Secretary, and the Officer Commanding the Forces—(Eight).

Imperial despotism triumphed for the time. So far as we are able to learn the Home Government continues in its former attitude. There were a sufficient number of representatives of the home government at the meeting of the council to smother any local expression, but the principle will not down.

And at this time, as if in sympathy with the local spirit in Hongkong, we hear of the resignation of Senhor Coutinho, the Governor of the Portuguese colony of Macao, for the reason that he could not consistently conform to the pre-emptory orders from Lisbon and at the same time preserve the interests of the colony and do his duty to the colonists. Explanatory of his action, the representative of the *Hongkong Telegraph* writes as coming from authentic official sources:

"As is well known Macao yearly provides a grant-in-aid towards the impoverished exchequer of Timor. The sum is a comparatively large one for Macao. In spite of that the money so far paid out during the current fiscal year has already been more than double of the budget appropriation. Recently an order was received from the home Government directing Governor Coutinho to remit another additional amount which would bring the total up to over three times the original grant. With this peremptory order the Governor declined to comply, and with very good reasons, too. His Excellency stated that the coffers of Macao were not flush with cash. There were reproductive public works in the Colony of urgent necessity for all of which funds were needed to carry out. Public improvements were delayed and not carried out simply because there was no money available, yet all Macao's surplus revenue was drained away to nurse a colony of no benefit to Macao itself. Governor Coutinho, as an emphatic

protest against the arbitrary instructions, tendered his resignation. In taking so dignified a stand against what he considers an injustice to the Colony for whose successful government he is responsible, I make bold to assert, his action will not only be endorsed but justly applauded by all right-thinking citizens of this Colony.

"It is an open secret that, on two or three occasions previously, Governor Coutinho has expressed his desire to relinquish the reins of Government. His administration has been beset by a series of *contretemps* and usual difficulties. The *Tatsu Maru* incident, with all its attendant worries and anxieties, convinced His Excellency that there was something rotten in the State of Denmark. Senhor Coutinho was animated by the best of good intentions to put the house in order, and the fair, just, impartial and righteous man that he is, His Excellency endeavoured to place his administration, like Caesar's wife, above suspicion. Those who had hoped that his clean-handed government would have restored to Macao a fair name will regret his departure from the helm at this most critical conjuncture. Senhor Coutinho will sail with his family as soon as arrangements can be completed."

It might be said in this connection that when Governor Coutinho indicated his intention to leave the colony he was given a monster demonstration as an evidence of the high regard in which he is held there.

Here are two instances where the nationals of crown colonies have filed protests against the arbitrary acts of their home governments, one protests without the approval except tentatively and in part of the governor and the other in the most forcible manner by the local executive, who refused to be the tool of the Home Government at Lisbon to work a detriment to the colony whose interests he was presumed to protect and whose enterprise he was pledged to encourage.

And Europe is not alone represented with Crown colonies in the Far East. America has one carefully disguised under a name that is presumed to appeal to the democratic voter in the homeland, but one as despotic, if not more so, than either the Crown Colony of Hongkong or of the Colony of Macao. True the administration at Washington declares that the initial attempt of America to colonize is along a brand new line and one that has for its purpose the sacrifice of every selfish interest in an altruist attempt to educate the native and develop a self-governing nation along the most liberal lines. Such a colonizing feature is without precedent and its success depends on the capacity of the natives for government. In the meantime (now ten years have passed in experiment), all foreign and American enterprise must remain in abeyance until the Home Government at Washington gets tired of its missionary effort. The ear of the administration at Washington is more completely and effectively sealed when a protest from the American merchants, or colonists, is anticipated than London or Lisbon under similar circumstances.

Even the virtue of patience, which has some encouragement in Hongkong and Macao, finds none in the vacillating policy of the Washington administration. Hongkong and Macao have the benefit of established foreign policies, that may be relied upon, but America has none in regard to the Philippine Islands. The menace of Native control through the indefinitism of the time when it shall be decided to conclude the experiment in government, has been the greatest drawback to progress in the archipelago.

Hongkong knows that it shall remain a part and parcel of the sturdy British Empire for all time, and Macao has the same assurance as to the attitude of Lisbon, but the American in the Philippines is entertained by the prospect of some day—never definite—of the withdrawal of the American government. And the thought is not pleasantly entertained. Businessmen are prone to prefer government based on experience rather than be made the catspaw of experiment in government. So far as the wishes of the American businessman are concerned, they are and apparently shall ever be ignored, should they conflict with the political policy of the administration at Washington.

More resignations of governors, who refuse to carry out orders emanating from home governments, that they recognize as unjust, arbitrary and issued without regard to the wishes of those directly affected; more stirring protests similar to the resolution of the Hongkong Chamber of Commerce and the united effort of the combined press of the Far East, which is directly interested and designed to reflect the prevailing sentiment among the colonists, would finally make an impression that would surely awaken a sentiment in the different homelands, looking to better treatment of the pioneers on the firing line of the frontier, who are ever willing to bear their share of the burden of empire without complaint, and who are at least entitled to some consideration by Home Governments when legislative or executive action, directly affecting their interests, is proposed.

It means much sacrifice of official ambition for the sake of principle for the executives who would choose this course and much humiliation and embarrassment for the merchant who takes the initiative in such a campaign, but in the end they would all be honored by their countrymen as men who put principle before self and refused to remain tools of selfish systems that have little in their operations to commend and much to condemn.

THE AGE OF CONCRETE

No community of today that does not utilize concrete in the construction of its public buildings and other public works, may expect history to place it in the vanguard with the most progressive sections of the period. From the use of concrete in its original crude form there are now few features of construction work in which it is not utilized successfully. During the last ten years, engineers and architects have been obliged to take a special course to keep pace with the demand for reinforced concrete construction and there does not seem any limitation to the possibilities along these lines.

The latest and possibly the most novel use of concrete is in shipbuilding. Its possibilities in this direction are apparently unlimited, if we are to judge from the success with which it has been reported utilized by a firm in Rome in the construction of small vessels. The prospect for the more general use in shipbuilding of reinforced concrete in the near future is made the subject for comment by *The Scientific American*. That journal says:

"Strange though this title appears, 'the building material of the future' has actually been employed in shipbuilding. In the first Paris exposition, in 1885, a small boat made of reinforced concrete was exhibited by Lambot. This vessel, which was constructed of wire netting covered with cement, is still afloat and will soon be installed in a technical museum. It was regarded as a mere curiosity, and led to no practical result. In 1896 Gabellini of Rome built an experimental vessel of reinforced concrete, which is still in service on the Tiber and in excellent condition. The same firm has since constructed a large number of concrete vessels, designed chiefly for stationary service as bridge pontoons, for which purpose they are eminently well fitted, owing to their small cost of maintenance, as they need not even be painted. These concrete vessels, however, also include boats used in construction work in water and coal barges and lighters having capacities up to 150 tons.

"The character of the material and the methods of construction employed with it make it possible to build vessels of reinforced concrete of any desired form and dimensions. The frames and longitudinal beams are made of concrete reinforced with round bars of iron, and the skin consists of a single or double layer of concrete stiffened with wire netting, and made perfectly smooth and watertight by an external coat of pure cement.

"Longitudinal and transverse watertight bulkheads, air chambers, etc., can be constructed of reinforced concrete in any desired arrangement. Abrasions and other local injuries caused by collisions with piers, etc., are largely prevented by wooden buffers attached to the hull, and those that occur are easily repaired with cement. The boats cost almost nothing for maintenance, are fire proof, and can be constructed almost anywhere. They cost about half as much as iron vessels of the same capacity."

So, while the construction of vessels of reinforced concrete may be said to have passed muster in the initial stage, it is left for experts to specialize along lines tending to perfect the methods employed and to define the limits in this class of construction.

From another source, we learn that cement may play a large part in the preservation of the world's forestry by the novel method of tree dentistry.

"Hardly a day passes nowadays that a new use for Portland cement is not found," says the *Literary Digest*.

"Recently one of the leading railroads replaced wooden telegraph poles by concrete poles, and they are being found more satisfactory from almost every point of view. Reinforced concrete planks are being used in steamboat construction. Wooden ties are being replaced by concrete on some railroads. The infant's milk is obtained in a dairy where the floors, walls, bins, feed mixing troughs and stalls are all of concrete. As he grows older he is surrounded on all sides by concrete structures, and when he dies his body is placed in a grave whose vault is constructed of concrete and a concrete tombstone is used to mark his resting place. Thus the examples of the varied uses of cement might be multiplied. One of the most novel, however, is the use of cement for 'tree dentistry,' which is described in a recent catalog of the Dragon Portland Cement Co. This consists in the filling of old cavities in the trunks of trees with a rich cement mortar, after the rotten wood has been carefully removed, somewhat similar to the manner in which a dentist carefully cleans a tooth cavity before filling. Care should be exercised, however, to see that the surface of the cement is low enough for the bark to grow over it. Foresters believe this will be the means of saving many old trees from further decay and destruction."

From another exchange we learn that the use of reinforced mine-timbers is feasible.

"They have been introduced by D. W. Shepard of Denver, involving a new method of reinforcing by trussed rods. By this system greater resistance is given to lateral strains, increasing the strength of the concrete member in the direction in which its weakness has in the past proved an obstacle to its use. Thus, it is claimed, caps of reinforced concrete may be made having, within less compass and lower cost than ordinary timber, decidedly superior strength. The reinforcing rods employed are of ½ in. steel, and the size of post and cap proposed as standard by Mr. Shepard is 4 by 9 in. For permanent shafts and gangways it is conceivable that a system of this kind may present advantages which will commend it to increasing favor among mine managers, on account of the rapidly growing expense of timber and the generally decreasing cost of cement throughout the country as a result of competition."

Reference has also been made from time to time in regard to house heralded as an invention of Thomas A. Edison which is novel only in the matter of the forms in which the house is moulded. "The moulds consist of cast-iron plates less than an inch thick, with milled edges and faces having flanged joints drilled for dowel-pin and bolt connections. The inner surfaces of the plates will be nickel plated or faced with brass where ornamental finish upon the concrete is required. All the details of bearings for reinforcing rods, and ways for plumbing connections and electric wiring, are provided, and the moulds properly numbered for speedy erection. It is proposed to employ steam or electric platform derricks for handling the moulds in erecting

and in taking down. Economy in construction with the Edison system will result only through duplication of the same structure with the same set of moulds. It is estimated that a set for a two-story house of eight rooms will cost less than $40,000, and that such houses may be built for less than $2000 with cement at $1 50 per bbl. Mr. Edison proposes to use a mixture of 1 part cement, 3 parts fine sand, and 5 parts crushed stone or gravel passing a ⅝-in. ring."

And perhaps the most important matter now engaging the attention of engineers is the adaptability of cement for roadbuilding from the point of durability, sanitation and economy. So far as can be learned, its use has met with success in this direction. In the May number of the FAR EASTERN REVIEW we published a letter that should interest every municipal engineer in the Far East. It was written by the city civil engineer of the city of Richmond, Indiana, and affirms that after a period of 12 years an alley paved with concrete showed little signs of wear. The cost was about 18 cents gold a square foot and there has been no cost for repairing. After it was laid, owing to the settlement of gravel around an adjacent hotel, this particular pavement settled, but instead of being disastrous, as in any other class of paving, the effect was simply to make the surface uneven.

The construction of permanent roadways in the Far East has been one of the most difficult problems with which western effort has to wrestle and if cement construction is as feasible as the city engineer of Richmond asserts, the building of highways is no longer a problem.

JOHN S. LEECH, PUBLIC PRINTER OF THE UNITED STATES

"Over in the Philippines they are doing public printing so successfully and so cheaply that it has been suggested that the Central Government at Washington send its work over there to be done. The space intervening has proved such a drawback to this proposition that the next best thing has been done, and John S. Leech, the man who made the Philippine office, is being brought to Washinton to do the same things here on a big scale that he has done in the islands in a small way.

"In the archipelago the United States' schedule of payments has been applied to the work of the different bureaus when their printing was to be done, and the profits were so great that the prices were reduced 20 per cent. Even on this scale it has been found necessary to divide up the money left over and give it back to the people for whom the printing was done. Somehow there had been found a way to get out the work economically, and the man who is doing it is to be given the chance to show the home government what it may learn from the insular possessions." — *William Atherton Dupuy in the Washington Times.*

Early in the year 1901, John S. Leech, foreman of the Fifth Division of the Government Printing Office at Washington, D. C., received a "Message to Garcia." It came in the form of an order from the Philippines for a man to plan, assemble, transport to the Philippine Islands and instal there a modernly equipped printing plant of sufficient capacity to handle the work of the newly established government. The request came from Governor Taft through Secretary Root who requested Public Printer Palmer to pick him out a man who would size up to the job. Foreman Leech was recommended. He was selected at once and with the simple information that the Philippine Government wanted him to furnish a plant, he proceeded unaided to deliver the "Message." In eleven months he had delivered the goods in the form of a 300,000 plant and since that date until he was selected by President Roosevelt, last month, to take charge of the $20,000,000 plant of the United States Government at Washington, he has been in charge and given the islands a demonstration of the greatest possibilities of the printer's craft and his reward is the highest in the gift of the nation for the graduate of the "Cases."

Mr. Leech was born in Bloomington, Ill., in 1869. He began his apprenticeship in the office of The Pantagraph Printing and Stationery Co. of his native town.

After concluding his apprenticeship, he went to Chicago and worked there until he secured a position as printer in the government printing office at Washington, at about the age of 21. He was soon promoted from the "Cases" to the proof room, and later assigned to the press revision on the night force during the sessions of congress. Here he established a record of sending direct to press from first proof, which the craft will appreciate. Under Public Printer Palmer, he was appointed foreman of the famous Fifth Division in which, in conjunction with other work, the day's record of congress was set up and the distribution made of the type set up by the night force. He held this position from 1897 until May 29th, 1901, when he accepted the rather indefinite commission from the Philippine government. His instructions included the organizing of a staff and the purchase of the plant and supplies. Not an estimate was furnished him, nor did he ask for any. As soon as he was given offices in the bureau of Insular Affairs, he selected as his assistants Edwin C. Jones and J. A. Hoggsette, both assistants out of the famous Fifth Division, Mr. Jones to remain with him until he took the "Lone Trail" early last month and Mr. Hoggsette, who succeeds him as Acting Director of the Philippine Bureau.

He at once secured the auditor's report on printing bills paid by the Philippine government for a few years previous, and, with this as a basis, he prepared his plans and specifications, even to the detail of special accents necessary to complete his equipment to handle the Spanish, Tagalog and other Filipino languages. In preparing the "scheme" days of work were involved in reaching an estimate of the proper proportion of accents believed necessary for the work. The schedule when completed included equipment for a composing room, book bindery, electrotyping and stereotyping foundry; a photo-engraving division; press-room division; linotype division; power plant and machine-shop division. Bids were advertised for and in the latter part of 1901, 10,000 cases and a force of 20 men arrived in the harbor of Manila. Messrs. Jones and Hoggsette had arrived previous to the consignment and had selected the site as well as renovated the building to suit the volume of the plant. The installation was completed and the plant opened on June 1st, 1902. Since that time it has been increased to meet the government demands upon it. For instance the linotypes have been increased from four to twelve in the last six years. The plant stands to-day a monument of neatness on the South of the beautiful Botanical Gardens of Manila, every piece of machinery in perfect order and directed by a system that secures the greatest possible results at the least possible cost.

Mr. Leech made a feature of training Filipinos and succeeded so well that upon his promotion there were 353 Filipinos on the pay roll and only twenty American craftsmen, who supervised the different departments. The direction of the plant with American supervising craftsmen over Filipinos trained under them has been a marked success besides turning out skilled craftsmen, able to take charge of commercial offices. Each year there are from 30 to 50 graduates and about 80 apprentices at the cases all the time. Perhaps no other bureau has met with the success in training the young idea in the Philippines and certainly no graduates in any craft or trade have given more general satisfaction.

The fact that he delivered the "Message to Garcia" and brought the Philippine Bureau to the highest state of efficiency and kept it there, attracted the attention of President Roosevelt at a time when the printing bureau at Washington was in a hopeless political and economic muddle, and probably no one was more greatly surprised at the appointment than the recipient.

This promotion means the control of the greatest printing plant in the world and the direction of an army of 3,300 employees operating in a plant that is valued at about $20,000,000 U. S. C.

Mr. J. A. Hoggsette, who succeeds Mr. Leech as acting director of the Bureau of Printing, was born in New York City in 1877 and worked out his apprenticeship in the office of Major Davis, the father of Oscar King Davis, in Wahoo, Nebraska, where he started work at the age of 13 years. In 1899 he took the civil service examination and went on the cases in Washington to be later promoted by Foreman Leech as one of his assistants and selected to join his Philippine staff as foreman of printing. He was advanced to the position of superintendent of work, one of the most important in the gift of the director. His home is in Lincoln, Nebraska. Mr. C. E. Wagoner, acting superintendent of work, was promoted to acting assistant director, and Mr. E. E. Gessler to acting superintendent of work.

HONGKONG-MANILA CATTLE TRADE.

The action of Messrs. Jardine, Matheson & Co., Messrs. Shewan Tomes & Co., and Messrs. Butterfield Swire, in protesting not only against the injury done to the export cattle trade of Hongkong by the stuffing and drenching of cattle at the Animal Depot, but against the inhuman method employed to add weight to the animals, has met with the endorsement it deserved, and henceforth the strictest discipline will be maintained against a recurrence of the outrages.

In this connection it might be said that the Philippine Government has been expending millions of dollars in an ineffectual effort to stamp out rinderpest, and the unloading of imported cattle that are either sick and susceptible to disease as a result of the stuffing at Hongkong, did not serve to assist in making this campaign a success.

This attitude on the part of the Philippine Government has no motive but the protection of Philippine stock and there is every reason to believe that satisfactory regulations will be arranged for so that this trade may be encouraged. The action of the Hongkong authorities in promptly suppressing the stuffing process has made a most favorable impression and reflects credit upon the business firms who took the initiative.

MONSTER ORDER FOR AMERICAN STEEL RAILS

The reported offer of John D. Rockefeller to finance the proposed railway extensions in Western Russia, followed by the order placed by the Russian government with the American Steel Trust for one million tons of steel rails, would indicate that American capital will have its share of interest in the development of Siberia. And in passing it might not be foreign to the subject to state that Mr. Rockefeller is not investing his money in response to any sentiment. He has ever been a true prophet in regard to his own investment and it will not surprise anyone familiar with the magnate's career if there should develop a few oil deposits in the vicinity of the proposed lines awaiting the touch of the Standard Oil Wizard to gush forth abundantly.

It is well known that the competition in the Far Eastern market created by Russian oils has worried the Oil King. This unusual condition of mind, as may be presumed, could not continue indefinitely with Mr. Rockefeller. During his career, competition was the least of his worries. He had a special "half-Nelson" for it in any form, and history confirms his success in utilizing it. Now we may expect an exhibition of his skill in dealing with the Russian brand of competition.

Rockefeller has a keen appreciation of the value of transportation and since there is no interstate commission in Russia, the advantages of rebates may not be denied him, and there is every reason to believe that Mr. Rockefeller is not financiering any Russian railway enterprise unless assured of special privileges of a character that furthers his interests abnormally and at the same time chloroforms all competitors. We shall see what we shall see.

ROYAL STATE RAILWAYS OF SIAM

The opening ceremony of the new railway to Petrieu and the Northern Extension from Paknam Pho on January 24th, last, at which His Majesty the King of Siam presided, was the occasion for an interesting review of the work on the extensions in progress of construction under the direction of the Ministry of Public Works, and contained in the following address read to the King by H. R. H. Prince Naresr:

"By Your Majesty's most gracious commands the Ministry of Public Works has now completed two further sections in the general scheme of railway extension sanctioned by Your Majesty.

"These sections comprise the first portion of the Eastern trunk line, that from Bangkok to Petrieu, and the third section on the main line from Bangkok to the North, that is Paknam Pho to Pitsanuloke.

"These extensions must be very pleasing to Your Majesty, for they bring Your Majesty into closer touch with the people and thereby foster a spirit of loyalty to Your Throne and person, and at the same time enable the functions of Government, in all its administrative branches, to be better performed.

"With Your Majesty's gracious permission I will now give a few particulars concerning the construction of these lines.

"EASTERN LINES BANGKOK-PETRIEU.—The work on this line was commenced in November 1905, the total length is 634 kilometres, and the gauge the same as that on the Korat and Northern lines. It is practically level throughout and passes over a rich paddy plain lying between the Me Nam and the Bang-Pa-Kong rivers. The district is well populated and most of the land is cultivated.

"EXPROPRIATION OF LAND.—This has proceeded satisfactorily, the total cost amounting to about Tcs. 45,000 or Tcs. 29 per rai.

"EARTHWORKS.—Owing to the soft nature of the ground the execution of earthworks has caused some little difficulty, especially so at the ramps of the bridge approaches. The surface at these places being unable to support banks built of earth in the ordinary way, paddy ash was used for the purpose, and this being of a very light nature the difficulty was satisfactorily overcome.

"The earthworks amount to a total of cbm. 752,000 at a cost of Tic. 500,000, or Tic. 0.67 per cbm.

"BRIDGES.—Three types of bridges have been used, viz:

1. Timber structures on wood piles.
2. Steel girders on masonry abutments.
3. Steel girders on screw piles.

"On the first named only two have been built, it being found that the cost of piling, owing to the long lengths required, made them as expensive as steel girder bridges.

"Of type No. 2, 10 bridges have been built, each bridge being of ten metres span; these are of solid construction and have given satisfactory results. Of the third type, several of the bridges have not been a success. Through the swampy nature of the ground many of the screw piles sunk below the theoretically calculated depth considered necessary to substitute concrete piers and abutments. This work is now being carried out and will be proceeded with without interrupting the traffic.

"PERMANENT WAY.—This is of the same description as the Northern lines; the sleepers have been obtained from the Khorat district, and the ballast from the Pak Preo and Chong Keh quarries.

"STATION BUILDINGS.—A brick station building with tile roof has been erected at Petrieu, also a locomotive shed and turntable, as well as quarters for the officials and men of the traffic and maintenance service.

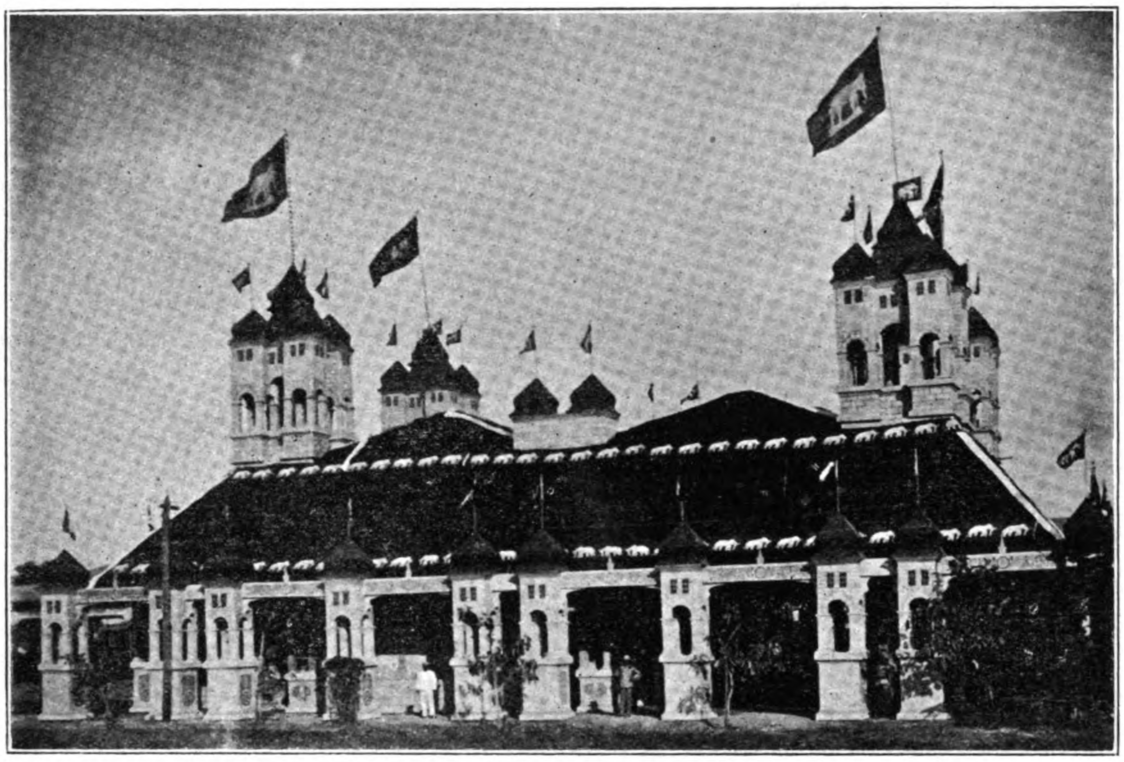
"ROLLING STOCK.—For both Petrieu and Pitsanuloke lines rolling stock was put up to public tender and the orders placed in the following countries:

16 Locomotives, 1 inspection coach, and 85 goods wagons from Germany	cost	£59,714
73 Passenger and luggage vans from England	cost	37,375
180 Rice and ballast wagons from Belgium,	cost	25,030

"COST OF LINE.—The original estimated cost of the line was Tcs. 3,200,000. The actual cost cannot yet be stated as the work is still uncompleted. It is not, however, likely to exceed the estimate by any large amount, and the cost per km. will probably be about Ticals 51,000.

"Petrieu being well connected with Bangkok by means of Klongs, and also by sea, it is not expected that the line will derive much benefit from paddy transport. This however will be compensated for by the passenger and light goods traffic, the prospects of Petrieu which formerly took 2 days will now be done in two hours. Not the least important matter is the fact that this is the first section of the Eastern trunk line to the provinces of the Pachim and Chantabun.

"PAKNAM PHO TO PITSANULOKE.—This line, 138 Kms in length, was commenced in January 1903. It runs in a Northerly direction from Paknam Pho and completes another section of the main line from Bangkok to Chiengmai; of this Northern line a total distance of 338 kms has been constructed, leaving 334 kms to complete the work. The line follows in close proximity to the Mehnam Yai and traverses a large plain covered with high grass and jungle, which is subject to yearly inundations to a depth of two metres.



J. Antonio, Photographer.

ROYAL PAVILION AT THE BANGKOK TERMINUS, SIAM ROYAL STATE RAILWAY

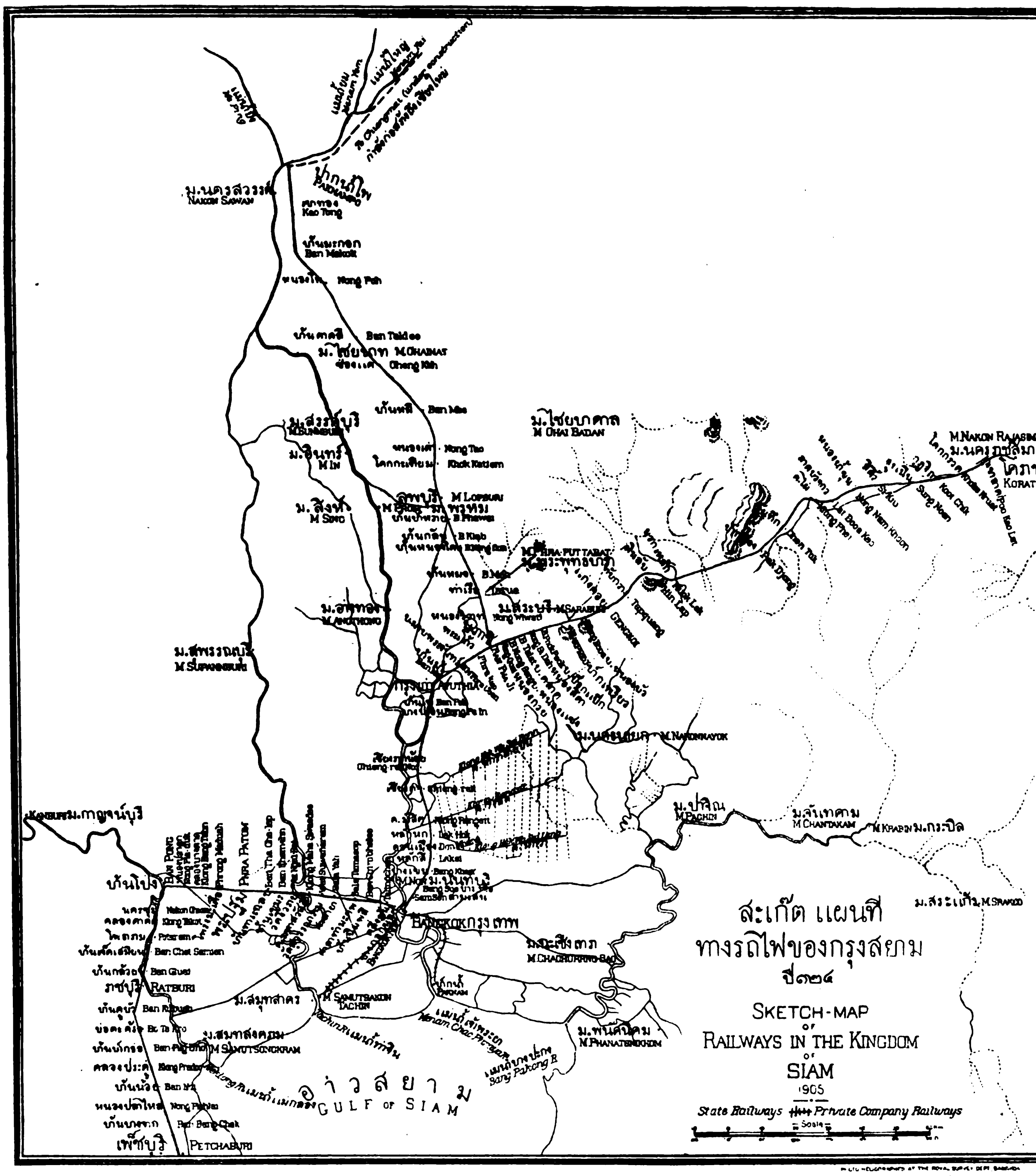
"EARTHWORKS.—These have not been carried on without difficulty, and the expense has been high. The floods necessitated an embankment 2 to 3 metres high, with many places of 6 metres in a lower ground. During the rainy season extensive slips occurred in these banks, and these had to be made good with earth of a harder nature brought by train from the high ground South of Paknampho. The works were also completely stopped during each wet season for several months. All these added considerably to the cost which amounted to T.4,100,000 for the 5,177,461 cbm. executed or T.30,000 per km. as an average amount of T.11,000 for the other lines in the country.

"BRIDGES.—Of the 93 bridges constructed 4 only are of steel, the remainder being of timber of the ordinary type in general use.

"PERMANENT WAY.—It is of the usual type, gauge 1.435m., weight of rails 25 kgm. per metre, laid on wooden sleepers which have been cut locally in the forests South of Paknam Poh. The ballast has been obtained from the quarries South of Paknam Poh, also from an isolated hill of granite near Pichit.

"STATION BUILDINGS.—At Pitsanuloke and Pichit it is intended to erect brick buildings, which are in course of construction. For the smaller stations the usual type has been adopted. A turn table and engine shed has been provided for at Pitsanuloke, and the necessary quarters for the officials where required.

"TOTAL COST.—There being still considerable work to be done in completing the earthwork, ballasting, etc., the exact cost cannot yet be given, but according to the Director's estimate it will amount to about T.10,500,000 or T.76,000 per km. This is an excess of T.12,500 over the average cost of the existing lines, and due entirely to the heavy earthworks.



Courtesy Director-General Royal State Railways.

RAILWAY MAP OF SIAM

"It is not probable that this line will add much to the traffic receipts for some time to come, for the country traveled is poor and the population scanty. The importance of this section is mainly due to its being an important link with the line under construction to Utaradi, the well known trading centre in the No, and to its being another completed section of the main line to Chiengmai and the North."

Through the courtesy of the Hon. L. Weiler, Director General of the Royal State Railways, the FAR EASTERN REVIEW is in receipt of the annual report for the year ending March 31st, 1907. This report deals with the administration and traffic of the system in operation for the period referred to. During the year there were 423.79 kilometers of standard gauge, known as the Korat and North Line and 151.05 kilometers of one meter gauge known as the Petchaburi line, in operation and during the next fiscal year (concluded March 31, 1908) the following openings were anticipated, of which the reference above is a part:

64 kilometers on the Eastern line between Bangkok and Petriu and 138 kilometers between Paknampoh and Pitsanuloke.

The receipts for the year to which the report refers on all the lines amounted to Ticals 3,511,345 and the expenditures Ticals 1,276,809, leaving the net earnings, Ticals 2,234,538. The percentage of increase compared with the previous year on receipts was 24.27%; on expenditure, 24,34% and on the earnings, 21.71%.

After deducting 10% of the net earnings for the renovation fund there remains a profit on an average of 5.75% on original cost of all the lines operating including additional accommodation on the lines up to March 31st 1907. The renovation fund on this date had a balance of Ticals 307,833.37.

The average cost of construction, including the acquisition of the land, all the works, equipment, shops, rolling stock, telegraphs, etc., and even including the sum of over17,000 Ticals for a fiesta in connection with the Paknampoh line, for each kilometer was Ticals 57,551.

The rolling stock consists of 48 locomotives of German and English make, ten of which were working on construction and 8 were operating on the meter gauge. The manufacturers who supplied these locomotives are: Hunslet & Sons in Leeds; Dubs & Co. in Glasgow; Pecket & Sons in Bristol; Kraus & Co. in Munchen; Hannover'sche Maschinen-Fabrik vorm, Egestorff, Linden vor Hannover.

The number of tickets sold for the year were 2,640,782 and the receipts from passenger traffic, Ticals 2,267,100; the receipts from freight traffic amounted to Ticals 1,439,493.

The amount expended in construction of new lines during the year was Ticals 226,368.

J. Antonio, Photographer.

GUARD OF HONOR AWAITING ARRIVAL OF HIS MAJESTY THE KING OF SIAM AT BANGKOK TERMINAL, ROYAL STATE RAILWAYS

The last word on the success of the new extensions of the Siam railwaws comes from the *Bangkok Times* of recent date. That paper says:

"The new railway to Petriu, opened by His Majesty on January 24th 1908, is attracting a large passenger traffic. At first, trains of four coaches were found quite sufficient to meet the demand, then the passengers increased to such an extent that first two extra coaches were kept regularly running, and now the ordinary train consists of twelve carriages, while on certain occasions the trains have numbered sixteen coaches. The carriage of goods also shows a gratifying increase.

"People journeying from distant parts to Petriu and thence to Bangkok by rail are often unable to make the outward and homeward journey in one day, and to make provision for those who are compelled to stay at Petriu overnight, the Royal Railway Department is, we understand, going to erect a number of houses and shops. The management of these will not be undertaken by the department, but the houses will be rented. Thus it will always be possible for travellers to obtain food and accommodation.

"The question of lighting the trains by electric light has also been receiving attention of late, and installations of dynamos, accumulators, etc., have been fitted on to some inspection cars, with, we believe, satisfactory results. It is hoped when the next section of the northern line to Utaradit is opened that the trains running there will be lighted by electricity."

The accompanying map is published by the courtesy of Director General Weiler.

In March, 1892, the King cut the first turf of the first State Railway in Siam. The first section brought into use was that from Bangkok to Ayuthia, opened by His Majesty in March, 1897, on the eve of his first departure to Europe. Before the end of the year the trains were running to Gengkoi. In November 1900 the line was opened through to Korat, and in April 1901 the section of the Northern Line to Lopbury was opened to traffic. Then in 1903 came the opening of the Petchapuri Line, and in November 1905 the traffic on the Northern Line was extended to Paknampoh.

J. Antonio, Photographer.

TRAIN ARRIVAL AT PETRIEU STATION, ROYAL STATE RAILWAYS

JAPANESE-BUILT LOCOMOTIVES

The railway authorities of Japan believe that they can save about yen 2,000 each by having their locomotives built in Japan. For the purpose of experiment the works at Hyogo recently turned out one engine which is now being used on the Tokaido Railway. Four more locomotives have been ordered at these works for further experiment and if satisfactory the manufacture of locomotives will be carried on in a large scale by the Imperial authorities. The product of the Wakamatsu foundry is being used in these experiments.

*THE METALS IN 1907

COPPER.

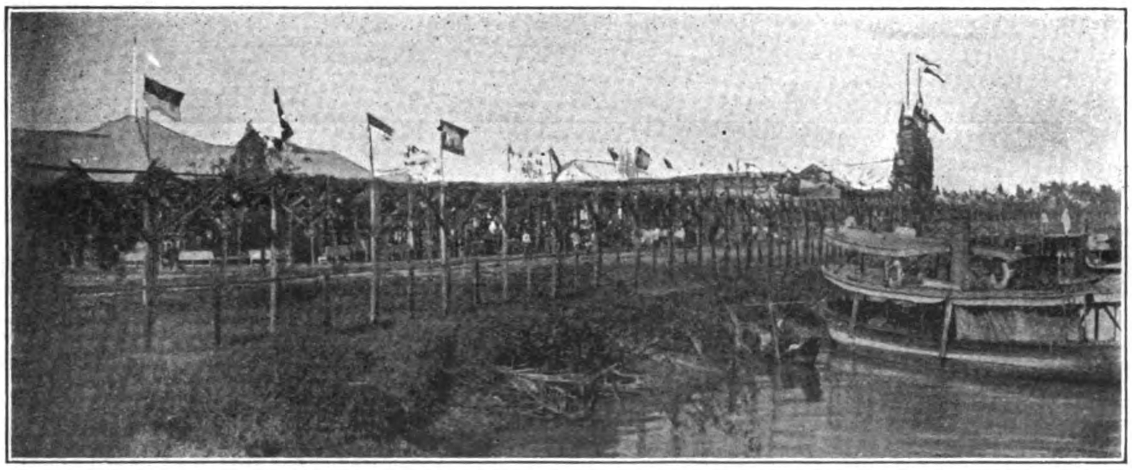
For the first time in fifteen years, the world's production of copper in 1907 showed a decline. Amounting, as it did, to 713,000 tons, it was 5.000 tons, or .7 per cent. short of that of the preceding year. As to the general conditions of the production and consumption of the metals in the different

J. Antonio, Photographer.

NEW GOVERNMENT HEAD OFFICE (FRONT VIEW) PETRIEU, ROYAL STATE RAILWAYS

countries, the comparative tables appended to this and the following extracts give comprehensive and detailed information.

In the United States of America, owing to economic and technical reasons which are well known to our readers, the output of copper receded by 10,200 tons. The consumption, however, which during the first five months of the year had been so brisk that at times an actual copper famine prevailed,



J. Antonio, Photographer.

DECORATIONS AND ILLUMINATIONS IN FRONT OF THE HEAD OFFICE AT PETRIEU IN HONOR OF KING'S VISIT

weakened at the end of the first half-year, and during the second half sometimes came almost to a standstill, the consequence being that, notwithstanding the decline in the production, at the end of the year large stocks had accumulated in America.

The first among the American copper producers to publish its annual report for 1907 has been the Osceola Consolidated Mining Company. One of the facts mentioned in that report, which ought to be particularly pointed out, is that the total cost of production per lb. of copper, which in 1906 amounted to 10 89 c., rose in 1907 by 1.55 cent, or .14 per cent., to 12.44 c. Compared with 1904, the increase in the cost of production amounts to 2½ c. per lb., or 25 per cent.

The stocks of copper which had accumulated in the United States at the end of the third quarter of 1907 must have experienced a large reduction during the last quarter, as is shown by a comparison of the export figures of the United States for the single months. While the monthly average of the shipments during the first nine months amounted to about 14.000 tons, the figures of the exports during the last three months are as follows:—

October	.. .. ..	about 28.000 tons.
November	.. .. ..	" 38,500 "
December	.. .. ..	" 37,300 "

In computing the world's consumption for the year, when the increase in the visible stocks stored in Europe and the estimate of 45,000 tons for the stocks in the United States are taken as a basis, the following figures are arrived at:—

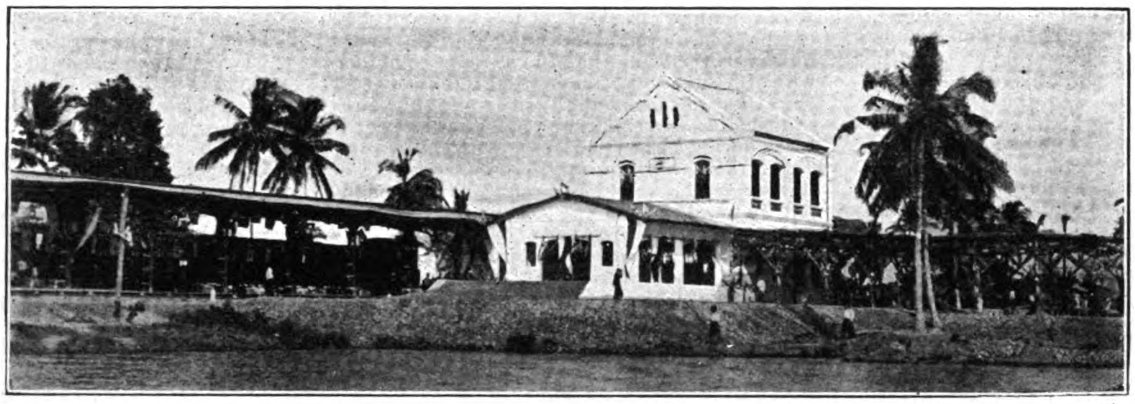
1904.	1905.	1906.	1907.
655,000 ..	723,000	723,000...	675,000

The decline, compared with 1906, therefore amounts to 48,000 tons, or 6.6 per cent. Like the decline in production, that in consumption is to be debited exclusively to the United States of America. The consumption there may be estimated at 232,600 tons, as against 298.600 tons during 1906, a decrease of 66,000 tons, or 22.1 per cent. This decrease has no parallel, either in actual figures or in percentages, in any one of the preceding years.

Germany's copper statistics for 1907 show only unimportant changes when compared with those of the preceding year. The production of 31,900 tons remains about 400 tons behind that of the preceding year, while the consumption has receded by 1,300 tons to 149 800 tons. The excess of exports of copper in finished goods and alloys over imports stands, with 31,500 tons, at the level of the preceding year.

As to Russia, the conditions of production, as well as of consumption, have undergone a very material change when compared with the preceding year. According to the figures communicated to us by competent Russian firms in the copper trade, the pro-

[*Specially Translated and Compiled for "The Mining Journal" from the Report of der Metallgesellschaft und der Metallurgischen Gesellschaft A.-G., Frankfort a./M., March 1908.]



J. Antonio, Photographer

PETRIEU RAILWAY STATION, SIAM ROYAL STATE RAILWAYS

duction has risen from 10,700 tons to 15,000 tons—i.e., by more than 40 per cent. Imports, on the other hand, receded to one-third of their previous figure—viz., from 13,200 tons to 4,500 tons—while, at the same time, Russia began to appear among the copper exporters, though not to a very considerable extent. Her copper exports in 1907 amounted to 1,500 tons, as against 400 tons in 1906 and nil in 1905. Simultaneously with these changes the consumption of copper in Russia has declined by 5,500 tons, or 23.4 per cent. According to the opinion prevailing in expert circles, the development of Russia's copper production is likely to make further progress during the next few years. If this opinion should be verified by events without producing increased activity in Russia's copper consumption, a turning point in the history of Russia's copper industry would be arrived at, in so far that the country would develop from a copper importer to a copper exporter. During the near future, however, Russia will not be in a position to bring her copper imports to a full stop. Those imports consist almost exclusively of electrolytic copper, which the electrolytic works at present existing in the country are unable to produce in the required measure. But in view of the fact that copper shipped to Russia has to pay a considerable import duty—about £32 per ton—the transition from the condition of a copper-importing to that of a copper exporting country must, as a matter of course, be assisted by appropriate economic measures. With this end in view, the Russian copper producers have formed an association for the purpose of erecting, in common, an electrolytic copper refinery in Russia.

Neither as to shipments to China, nor as to the copper consumption of that country during 1907, is it possible as yet to give definite statistics. The United States exported in 1907, 4,500 tons to China, as against 2,200 tons for the preceding year, while Chinese imports from Japan amounted in 1907 to 12,100 tons, against 5,800 tons in 1906. How far this increase in Chinese imports has actually entered into the consumption there cannot as yet be correctly ascertained, figures relating to re-exports of copper from China for 1907 not being available as yet. In 1906 those re-exports amounted to 7,200 tons, so that during that year only about 800 tons became part of the Chinese consumption. It is, however, a fact already ascertained, that during 1907 the re-exports from China were rather unimportant. Another circumstance which deserves to be pointed out is that China of late has appeared in a much larger measure as a buyer of copper.

Production of Copper in Metric Tonnes.

	1904.	19'5.	1906.	1907.
Europe—				
Germany	30,300	31.700	32 300	31.900
England	65,000	67.900	72,700	72,400
France	6,900	7 600	5.800	*7,500
Italy	3,600	3.600	4.300	*4,000
Austria-Hungary ..	1,500	1,400	1 500	1.100
Russia	10 900	8,900	10.700	*15,000
Sweden, Norway, Spain, Balkan States ..	11.500	11.000	10,300	*11,000
Total (Europe) ..	129,700	132,100	137,600	142,900
America—				
U. S. A.	380,900	412,600	430,500	421,400
British North America.	8,000	10,700	13,800	14,000
Central and S. America	74,500	80,900	63,000	57,000
Total (America)..	463,400	504,200	507,300	492,400
Asia—				
Japan	32,100	33,700	*43,400	*45,000
Australia	22,700	23,900	29,500	32,500
World's total ..	647,900	693,900	717.800	712,800
	£ s. d.	£ s d.	£ s. d,	£ s. d.
Average London price	59 0 6	69 12 0	87 8 6	87 1 8

TIN.

The world's production for 1907 remained, with 98,700 tonnes, almost unchanged from the preceding year, while the total value of the output, owing to the lower average price of the year receded by about 5 per cent. The fluctuations in the amount of public stocks have been quite unimportant during the last three years. While the visible supplies in Europe and America at the end of 1907 show the small reduction of 200 tonnes, the aggregate stocks have been subject to an increase of 100 tonnes, owing to a strengthening of the Banka reserves. The currency conditions in the Straits Settlements have in the meanwhile been rendered more stable, and the Straits dollar is now independent of the fluctuations in the price of silver. It has also acquired a higher value when compared with former years, and this fact, in conjunction with the circumstance that the alluvial deposits now in course of exploitation are becoming poorer and gradually approaching exhaustion, has caused an increase in the cost of production, which has only partly been compensated for by the introduction of modern methods of recovery. The transition from open workings to deep level workings will probably every year make strong advances in the Straits Settlements.

Germany's tin production will presumably be shown to have suffered a slight decline, and, in view of the fact that the excess of exports over imports has also decreased, it may be assumed that the consumption during 1907 has only been about 15 100 tonnes, or 700 tonnes less than in the preceding year.

England has increased her production, from her own and foreign ores, to 14,800 tonnes, which is about 900 tonnes more than that of the preceding year. The imports rose by 200 tonnes to 44.500 tonnes, while, on the other hand the exports receded by about 5,400 tonnes to 36,000 tonnes. Public stocks in England have at the same time increased by about 2,800 tonnes, the result being that the apparent consumption has risen by 2,500 tonnes to 20,500 tonnes.

None of the other European countries shows an increased consumption; on the contrary, in most of them a decline has taken place, which, as the percentages for the single countries are not unimportant, is not likely to amount in the aggregate to more than about 1,800 tonnes.

The United States of America have suffered the heaviest decline in the consumption of tin—viz., 4,000 tonnes, which brings its total consumption down to 39,700 tonnes. Imports have receded by about 8,400 tonnes, while at the same time, stocks, which during the preceding year increased by 1,260 tonnes, have in 1907 decreased by 2,850 tonnes. The exports amounted to 570 tones, as against 820 tonnes in 1906. The decline in the consumption has almost exclusively to be debited to the last months of the year. While imports during the first ten months averaged about 3,200 tonnes monthly, they receded during December to 1,200 tonnes.

Production of Tin in Metric Tonnes.

	1904.	1905.	1906.	1907.
Straits shipments.. ..	61,838	59,500	59,875	56,550
England—				
(a) Production from domestic ores ..	4,198	4,538	4,594	*4,800
(b) Production from foreign ores ..	7,450	8.500	9.350	10,020
Banka sales in Holland..	11.735	10,260	9,450	11 440
Germany	5 000	5,233	6,600	*6,500
Australia	5,300	5,800	7,400	7,100
Billiton sales in Holland and Java	3,251	2,760	1,980	2,260
Total	98,800	96,600	98.800	98,700
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Average price for the year	126 14 8	143 1 8	180 12 11	172 12 9

LEAD

The world's production of lead, which in 1906 showed a decrease of 13,000 tons on that of 1905, will probably be found in 1907 to have more than recovered its previous loss. According to the statistical material we have so far been able to collect, the world's production for 1907 amounts to 992,000 tons, and, therefore, exceeds that of the previous year by 21,000 tons, equal to 2. 2 per cent.

The United States of America during 1907 recovered from its own ores 325,700 tons of lead, which represents an increase of 9,900 tons when compared with the previous year. The imports of pig lead having slightly declined, while at the same time the exports somewhat increased, we find as a prima facie result that the consumption should have amounted to 351,400 tons as against 349,200 tons in 1906. This figure, however, does not truly represent the consumption of the United States, considerable quantities of pig lead, estimated by the "Mining & Engineering Journal" at 45,000 tons, having accumulated at the end of the year in the hands of producers, as against only 3,600 tons at the end of 1906. According to these figures the real consumption of the United States during 1907 would amount to 310,000 tons, which is less than the consumption of 1905, while it represents a loss of fully 11 per cent. when compared with 1906. Owing to the decreased consumption during the last months of 1907, the American lead producers, headed by the American Smelting & Refining Company, were induced to restrict their production in order to prevent an excessive accumulation of stocks.

These restrictions are being continued even now. According to the information received here at the end of February, the American Smelting & Refining Company has reduced its operations to fifteen furnaces (though its full capacity consists of twenty-seven furnaces),

while the United States Smelting Company has only three of its six furnaces working. The reason of this is to be looked for in the lower prices of ores which have caused a marked reduction in the supplies of lead ore. To mention only one instance, there is the Coeur d'Alène district, one of the chief producers of lead ore, where the ore production amounted to no more than 50 per cent. of its normal figure.

The production of Mexico receded in 1906 from 75,000 tons to 54,000 tons—a loss of 21,000 tons, or about 24 per cent.; but in 1907 it rose again by 18,000 to 72,000 tons. How far the currency law of May 1, 1906—in virtue of which Mexico adopted the gold currency and gave the silver dollar a fixed value—has influenced the lead production, which is generally very intimately connected with the silver production, cannot yet be finally determined on the basis of the production of last year. An accurate judgment in this respect will only be possible after we have passed through a prolonged period of lower silver prices than the last three years have witnessed. It is probable that a longer period of low silver prices will unfavourably influence the lead and the silver production of Mexico, for owing to the fact that wages, salaries, and other expenses have to be liquidated in gold currency, the cost of production will not be affected by the fluctuations in the value of silver, while the prices realised for silver in bullion and ores will recede in accordance and in the same proportion with the receding money value of silver.

PRODUCTION OF LEAD IN METRIC TONNES

	1904.	1905	1906.	1907.
Spain	177,800	180,700	180,900	185,800
Germany	187,600	152,600	150,700	*140,000
France	18,800	24,100	25,600	*28,000
Great Britain	24,400	28,800	21,400	*20,000
Belgium	28,500	22,900	22,200	25,800
Italy	28,500	19,100	21,300	22,900
Austria-Hungary	13 100	13,500	16,400	15,400
Greece	15,200	13,700	12,100	13,800
Sweden	600	600	800	*700
Russia	300	300	*300	*100
Turkey (Asiatic)	10,700	10,400	9,600	10,400
U. S. A.	296,000	312,500	334,800	340,700
Mexico	83,900	*75,000	*54,000	*72,000
Canada	17,200	25,700	28,800	*21,000
Japan	1,800	2,300	3,500	*3,500
Australia	119,400	107,000	93,000	97,000
Other countries	800	200	200	*200
Total	964,100	981,900	970,600	992,800
Average price of English lead in London.	£11 19 8	£13 14 5	£17 7 0	£19 1 10

ZINC

The world's production of zinc in 1907 shows a further increase, which amounts to 36,400 tons, or about 5 per cent. The largest share in this increase falls to the part of the United States of America.

Germany's zinc production shows, with 208,700 tons, an increase of about 3,000 tons, or 1½ per cent. To this total Silesia contributed 138,400 tonnes, and Rhineland and Westphalia 70,300 tonnes. For the first time Germany had to be content with second place among the world's zinc producers, her output having been exceeded by America. Germany's zinc consumption of 174,900 tonnes was less by 4,400 tonnes, or about 2½ per cent. than in the preceding year. Her imports of spelter, amounting to 28,500 tonnes, receded by 8,500 tonnes, against those of the previous year, which amounted to 37,000 tonnes, but they still exceed the imports for 1905 by about 1,700 tonnes German exports of zinc were not subject to any material fluctuations during the last three years; for 1907 the slight decrease of 1,200 tonnes to 62,200 tonnes has taken place. Germany's production of zinc ores during 1907 has not yet been definitely ascertained. Imports increased by about 5,700 tonnes to 184,700 tonnes, while at the same time the exports receded from 42,600 tonnes to 34,900 tonnes. The excess of zinc exports in finished goods amounted in 1907 to 35,800 tonnes as against 30,500 tonnes for the preceding year. The increase is, therefore, 5,300 tonnes, or about 16.5 per cent.

* Provisional figures.

The United States of America, with an output of 226,860 tonnes, have advanced to the foremost position among all zinc producers. The increase over the preceding year amounted to 24,700 tonnes, or about 12 per cent., the greatest portion of which has been contributed by Illinois, the Eastern and Southern States, and Kansas. The consumption in the United States, however, has probably not exceeded that of the previous year, when 200,000 tonnes were worked up locally. We arrive at this conclusion by taking account of the existence of stocks, which, according to a communication by the "Mining & Engineering Journal," are likely to have amounted at the end of the year to 22,000 to 30,000 tonnes. In view of the heavy decline of the consumption in the United States during the closing months of 1907, combined with the disproportion which prevailed at one time between the prices of zinc ores and spelter, several zinc-producing concerns have decided upon partly or entirely closing down their works, and, as a consequence of this measure, zinc ore producers, too, have felt induced during the last months of 1907 materially to restrict their output.

An event of far-reaching importance is the formation of the Association of German Zinc Smelters. In the first instance, the association was planned for a period of three years, the expectation of the founders being that they would succeed in inducing the Belgian zinc works—which are naturally in a position to exercise a strong influence upon the German as well as upon the English market—to arrive at a common agreement concerning the determination and regulation of the production of the several works. If such an agreement should be concluded, the output of the existing zinc works, and those which are now in course of erection, would be regulated for the next three years.

Production of Zinc in Metric Tonnes.

	1904.	1905.	1906.	1907.
Rhenish Westphalia	65,888	67,243	68,697	70,268
Silesia	125,672	129,941	136,326	138,439
Belgium	139,982	145,592	152,461	154,492
Holland	13,099	13,767	14,650	14,990
Great Britain	46,216	50,927	52,587	55,595
France and Spain	49,082	50,369	58,786	55,733
Austria and Italy	9.248	9,357	10,780	11,359
Russia	10,606	7,642	9,610	9,738
Europe	459,293	471,800	498.897	510,614
U. S. A.	165,850	183,245	202,092	226,838
Australia	290	650	1,026	996
Total	625,400	658,700	702.000	738,400

Average price for the year £22 11 10 £25 7 7 £27 1 5 £23 16 9

STEEL COAL CARS FOR PEKING-KALGAN R. R.

The fifty 20-ton-all-steel coal cars recently delivered by the Leeds Forge Company to the Imperial Railways of North China for the Peking-Kalgan line are described as follows:

	Feet.	Inches
Length over buffers	24	3
,, ,, headstocks	21	6
,, inside	21	3
Width inside	7	8½
Height from rail level to top of side	8	8
Heights from floor level to top of side	4	9⅞
Cubic capacity	810	
Wheel diameter	2	9
Wheel base	12	
Journals		10+5

On each side of these cars there are two door openings, constructed of the Leeds Forge Company's patent corrugated pressed steel, each door opening being 4 feet 2 inches in width and 2 feet 3½ inches in height. The wagon sides are constructed of 7lb. steel plates. The cars are fitted, with a side lever brake operating one block to each pair of wheels, whilst central buffers and Janneys' couplers are also provided.

THE WAKAMATSU FOUNDRY

Mr. Nakamura, Superintendent of the Wakamatsu Foundry, in replying to questions addressed to him during the session of the Agricultural and Commercial section of the Budget Committee did not confirm the optimistic statements which were recently circulated about the state of that enterprise. He said that in no country had such a work been brought into a really successful condition within a shorter period than ten years. The smelting furnaces at Wakamatsu have been in operation since 1901 and were fairly successful, but most of the other departments were opened only recently, and it will take two or three years longer to get them into a thoroughly satisfactory condition. One great difficulty under which this Foundry is is the cost of coal, which is so expensive as to interfere seriously with the competitive ability of the works. At present about 130,000 tons of iron are turned out annually, but this amount is far from meeting the demand in Japan, and on the other hand the Foundry in existing circumstances can not produce iron as cheaply as it may be bought from foreign countries. The only hope, so far as he could see, lay in tariff revision, which would be possible in 1911.

Mr. Kanematsu inquired whether in such circumstances it would not be better to rely on imported iron for ship-building purposes; also whether there was no prospect of getting cheap fuel, and finally whether no hope is entertained of being able to supply the need of the Japanese market in the course of the next ten or fifteen years without relying on State aid or tariff revision. Mr. Nakamura replied that the price of coal had risen enormously during the past few years and that unless the Foundry could get its fuel at about 4 *yen* a ton or less, its chances of turning out cheap iron were small. There was a good hope of obtaining satisfactory ore in Japan but at present the Foundry relied entirely upon the supply coming from the Taiya mine in Chin. As to the import duty which it would be necessary to impose on the occasion of tariff revision, he could not speak with absolute accuracy, but he presumed that something like the rates charged in Germany and the United States would be levied. The delegate refused to pronounce any opinion in his official capacity as to the advantage or disadvantage of converting the Foundry into an enterprise carried on jointly by the Government and a private company, or converting it altogether into a private concern. As an individual, however, he did not hesitate to say that its prospects as a purely State enterprise were not bright.—*China Mail.*

KANABOI MINING COMPANY'S PLANT

A description of this company's extensive plant in the Kanaboi valley is given in a recent number of the *Malay Mail* as the result of an excursion to the mine under the direction of Mr. Richardson, the managing director.

The Kanaboi valley, which extends from Bukit Hitam to the Pahang watershed, has long been under the eye of the prospector and it is the development of the deposits of tin ore, which contains a percentage of alluvial gold, that this company has in view.

The works are connected with the Konkoi River a distance of two miles by a light railway operated by the company. The company has built a masonry dam across the Konkoi river above the Falls and from there a strong force of water is led through iron pipes down to its Kanaboi Concession which consists mainly of a large extent of flat land being worked by hydraulic monitors, the tailings difficulty being overcome by the use of elevators, the main idea being quick and efficient working at a moderate cost. The mining of tin is the chief object in view, but fair quantities of alluvial gold are found with the tin ore and are separated by a special process.

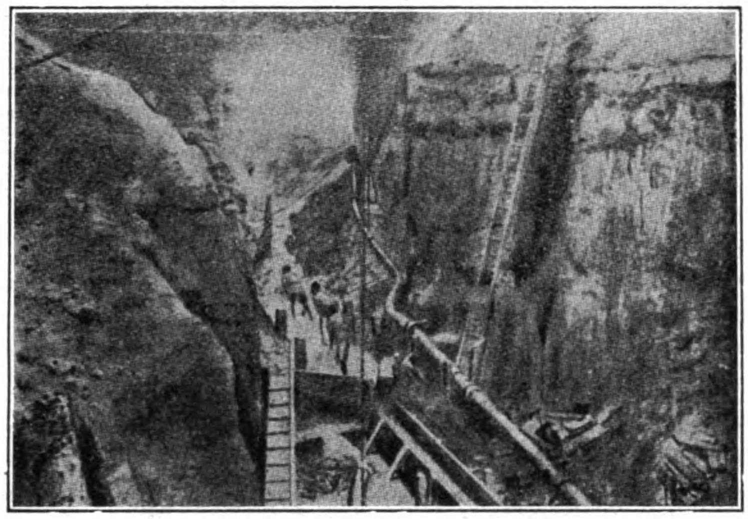
The elevator sucked up the stones and gravel from the bottom of the mine into the tail race. The company, so far, has done little more than development work and has been hindered a good deal by heavy rains and floods, but, with the change of season now, they should be able to go ahead in good earnest. The Kanaboi river will also be worked by a dredger, which has been built and will be started soon.

HYDRAULIC GOLD MINING IN BURMA

An interesting review of the workings of the Shweli Syndicate, Limited, one of the largest hydraulic gold mining plants in Upper Burma, is published with an illustration in *Capital*. It is reproduced by the FAR EASTERN REVIEW in view of the importance of this institution as a pioneer in that section of the East. *Capital* says:

"A few years ago there was discovered a large gold bearing gravel deposit in Upper Burma with all the necessary conditions to apply this method of mining there and the Shweli Syndicate, Ltd., was registered in methods for recovery of the gold a return of over one shilling per cubic yard will be attained, which is more than double of any American Hydraulic Mine.

"Hydraulic mining has been in existence in California, U. S. A., for the past 50 years, and under modern methods has been reduced to so fine a science that even wherever the gold bearing gravels run only some 3d. worth of gold in a cubic yard, it can be placed upon a safe basis for a regular dividend-paying concern, and is known over there as the safest form of mining, as the



THE SHWELI HYDRAULIC GOLD MINING CO.'S WORKS IN BURMA

Rangoon to prove the property. Their Managing Director visited California with a view to comparing the proposition with the mines at work, and to obtain the latest and the most up-to-date methods and information in that form of mining. A large pumping plant, pipe line, boring machine and tackle were purchased to the extent of £5,000 to prove the mine, and towards the end of last year were erected on the property. In December last hydraulicing commenced, and has been at work ever since, the results proving far better than was anticipated. The first hundred hours test put through 100 cubic yards, or about 160 tons of dirt and gold actually recovered to the extent of 9d. to the cubic yard, although in hand washing down the concentrates an unavoidable percentage was lost, which can easily be overcome with improved methods of recovery. Platinum is also present in the black sand, and the market value of the gold is £4-4-0 an oz. The gold bearing gravel has been traced and surveyed for over 3 miles by 2 miles wide and from 90 ft. to 294 ft. in depth, and taking it at an average of the former figure there are over 500,000,000 cubic yards to be washed, or in other words the mine cannot be worked out for a hundred years.

"The photographic view of the mine shows the hill being hydraulically attacked.

"It is now intended to carry through the bigger scheme on the same lines as the La Grange Hydraulic Mines in America, and to wash from 5 to 6 million cubic yards per annum. For this purpose the water rights of a large stream in the neighbouring mountains have been acquired from Government, for the purpose of bringing down the water under pressure and washing away the whole of the hill with giant nozzles. The gravels are also picked up lower down and form ideal paddock dredging grounds. It is intended to drive the dredgers by electricity, the energy from 2,000 to 4,000 horse power being derived from the above mentioned water fall.

"It is estimated under the bigger scheme that with efficient sluice boxes and the latest amount of gravel having been carefully prospected, it can be estimated down to almost the last ounce of gold that can be taken out of the property."

RADIOGRAPHY IN PEARL FISHING

The products of the sea are commonly wasted to a very deplorable degree by those who gather and use them, says the *Scientific American*. In no instance is this waste more marked than in the search for pearls. By the old method, which is still in vogue as a general rule, an enormous number of the so-called oysters are taken from their habitat and destroyed without any thought of economy. It is said that only one pearl is found in 100 oysters, and only one per cent of the pearls found are of any commercial value. Thus some 10,000 of the precious mollusks are sacrificed for every useful pearl obtained. Among these victims there must be a vast amount of inmature pearls or seeds, pearls *in posse*, which might grow and become valuable gems, which are deprived of that possibility by premature destruction.

In the year 1901 Prof. Raphael Dubois took radiographs of pearls *in situ* within the shell of *Unio prolifera*, and obtained a clear view of their size and situation in spite of the thickness of the shell in which they were incased. He showed these radiographs at the Linnean Society of Lyons, and remarked that the X-rays might receive a novel application if used in the fisheries of Ceylon, and the destruction of a vast number of the prized mollusks might thus be avoided.

The difficulty of applying the X-rays to many thousands of shells *per diem* seemed sufficient to deter the ordinary person from such a laborious attempt. However, a few years later an electrical engineer of New York, Mr. John J. Solomon, who took an interest in the question of pearls, was struck by the same idea of using the X-rays to detect the existence of pearls within the shell of the living animal. He was then unaware of the earlier experiments of Prof. Dubois but promptly set himself about the work from a commercial point of view.

In reviewing his work, *Nature* states that he found that an exposure necessary to obtain a good picture did not in any way injure the animal, and even an exposure of ten times as long could be applied harmlessly. The dangers lay rather in the removal of the bivalve from its normal attachment and in the time required for its transit from its bed to the laboratory of the photographer; for the pearl oyster is really a kind of mussel, which holds on to some fixed object by a brush of fibrils *(byssus)* growing from its body.

Thus the fundamental principle of Prof. Dubois, to save the life of unremunerative bivalves, bids fair to be carried out by American ingenuity and capital.

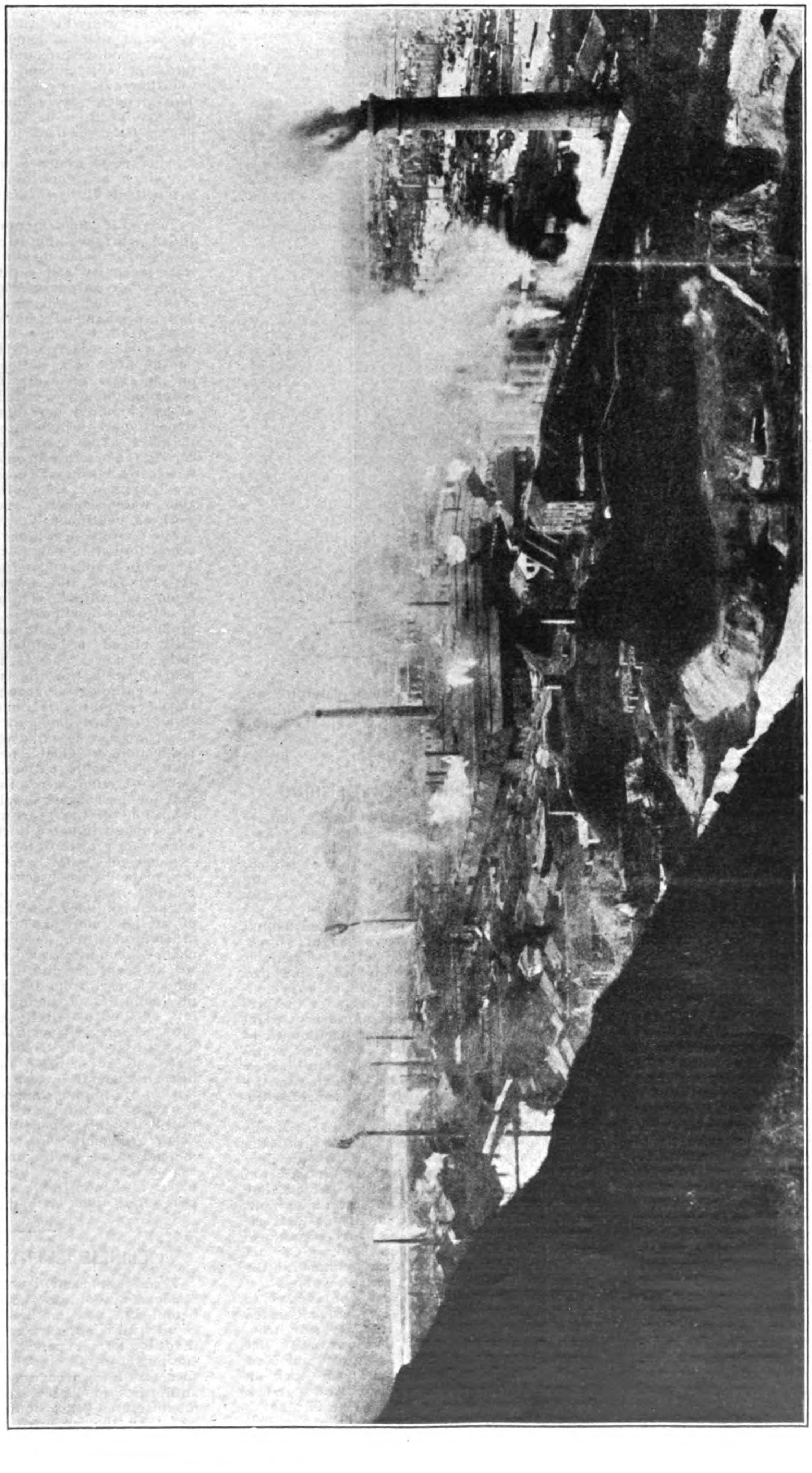
For practical purposes, where many thousands of shells have to be radiographed daily, a completely novel kind of plant had to be devised. This was done, and final success was considered to be well in view, when one hundred clear radiographs could be taken on an average every fifteen seconds. Mr. Solomon often succeeded in taking as many as five hundred per minute. In this process some hundred shells are exposed at a time to the rays. The oysters, spread on trays, are carried under the specially constructed cylinders by means of an electric motor. These great cylinders are cooled by means of suitable water jackets, and can thus be kept working continuously.

The oysters in which there is no sign of pearl formation are put back to their beds. Those in which good-sized pearls are detected are removed and opened, and the pearls promptly utilized. Those showing no pearls of adequate commercial value, but containing promising seed or immature pearls, are carefully placed in hospital. This hospital has rather a novel object; not the cure of the pearl disease (for the much prized gem is but a pathological growth), but, on the contrary, everything is done to keep the mollusk in *statu quo ante* so that the disease may progress as rapidly as possible to the production of valuable pearls and to the death of the incurable patient.

The question seems to arise, can the normal, or perhaps we should say, the abnormal, conditions of the pearl-producing bivalve be well enough imitated in captivity to insure the continued growth of the pearls? May not the "change of water" (as they must be kept nearer the surface) secure for the sufferers immunity from their diseased process? One might have imagined that a greater amount of sunlight, more oxygen, altered temperature, different nutrition, lessened pressure, and other changed conditions we think not of, would so influence the life of the mollusk that it might depart from its pathological but useful habit of producing these valued round bits of shell material, and the hospital might thus become a true *Kur-Anstalt* instead of a pearl-breeding depot. But Mr. Solomon tested these points, and he has satisfied himself that, if he can be certain to transmit in all circumstances the oysters to and from his laboratory without injury to their well-being, all other difficulties have already been overcome. As to the lucrative commercial value of the undertaking, time alone can tell; sufficient has not yet elapsed to make it demonstrable by actual proof that pearls can thus be hatched *en gros*.

CHINESE INVENTED WIRELESS.

The announcement is made that a Chinese resident of Canton, named Hu Chuen, had patented a new method by which wireless results in telegraphy were made more simple than by former patents. At a test of the equipment at Canton it was pronounced a success. It is recommended by the Chinese authorities for the reason that it can be manufactured from domestic materials, costs less than the imported article and is simpler to operate.



HANYANG IRON & STEEL WORKS

THE HANYANG IRON AND STEEL WORKS

Recent advices from Peking announce that, at the end of May, the shareholders of a Syndicate with a capital stock of Tls. 30,000,000, organized to amalgamate the Taiya Iron Mines, the Hanyang & Steel Works and the Pinghsiang Coal Mines, would meet to conclude all the arrangements. This amalgamation marks the beginning of an important era in the manufacturing industry of China and is of special significance to the steel trade in view of the extensive plans for railroad construction in China and the purpose of the Syndicate to supply the steel and rolling stock for these lines as they are being constructed. There are also indications that, if the plans of this large company are successful, the export of Chinese manufactured steel and iron to compete in the world's markets is not far distant. Of special interest therefore is the history of the development of the Hanyang Iron & Steel Works, at Hanyang, in the province of Hupeh, the nucleus of the present amalgamation which will concentrate the combined energy to mine the coal and the ore and turn it into the finished product.

In 1890, the first sod was turned on the present site, but it was not until three years after the first installment of machinery and furnaces arrived that the installation was completed. Then more delay followed over the difficulty of securing the necessary fuel. In fact the entire province of Hupeh was prospected with a view to securing coking coal without success, and the coke had to be secured in Europe.

In 1896, arrangements were made with Sheng Kungpo, the head of the China Merchants Steam Navigation Company and the Telegraphs, so that the latter took over the management. His first move was to prospect for a supply of coal and succeeded beyond his expectations in the discovery of the Pingsiang coal fields, located near the boundary of Hunan in Kiangsi province which have been worked with most satisfactory results.

Sheng Kungpao was not so successful with the iron works and finally he decided that more modern machinery and skilled management were necessary to the success of the enterprise. He sent to Europe and America a committee comprised of V. K. Lee, general manager of the works, Mr. Thomas Bunt, M. E., M. I., one time president of the Shanghai Society of Engineers and who assisted in the installation of the plant in the Kiangnan Arsenal, and Mr. Gustavus Leining, chief engineer of the colliery. This committee took with it samples of ore, product, etc., and after a thorough investigation of all the processes in Europe and America, reported favorably upon the installation of a modern plant, and this they proceeded to do on the site of the original works.

The process used is the Open Hearth (Siemens-Martin), and all kinds of structural steel used for every kind of shipbuilding, architecture, bridge material and railway steel are manufactured.

The plant running at its full capacity will consist of three blast furnaces turning out a maximum of 450 tons daily; three Open-Hearth furnaces with a capacity of 30 tons each; one metal mixer of 150 tons capacity; one cogging mill; one beam and angle mill; one plate mill; one gas-fire soaking pit with a capacity for rolling 1,000 tons of finished product daily.

In conjunction with the works are the coal and iron mines capable of supplying the iron ore and good coking coal indefinitely. The They a mine can furnish one million tons of ore annually according to the estimate of experts, and the Pingshiang mine is capable of supplying the same amount of coal annually. A railroad 15 miles in length carries the ore and another line 60 miles in length carries the coal from the mines to excellent waterways where it is loaded on vessels owned by the company for transport to the works. There are about 1,000 workmen employed and the administration is conducted by a staff of officials numbering about 140.

It is estimated that on the average about 5,000 tons of pig iron is exported every month, mostly to Japan, and one shipment is recorded having been shipped to the United States.

Of this shipment, Consul General Denby of Shanghai has the following comment: "The only shipment to the Atlantic Coast of which I have been able to obtain definite knowledge is a cargo of 1,500 tons shipped on July 5, 1907, from Hankow direct to Brooklyn. The price laid town in Brooklyn is said to have been $17.50 gold per ton, including freight, $4.75 per ton from Hankow to destination.

"This event is indicative of such far-reaching potentialities that it merits the attention of the iron industries of the United States. The carrying of such a commodity as pig iron 600 miles down the Yangtsze river, from Hanyang to the sea, and then 14,000 miles farther via Suez, and laying it down at New York in competition with American prices, is in fact a striking instance of modern trade development. This, of course, is only possible through the fact that ocean-going ships can reach Hanyang with eighteen feet draft at almost all seasons of the year, permitting the carriage of cargoes of about 2,000 tons without trans-shipment and to the fact that iron is found in great quantities in China, and produced under favorable conditions as to coal and labor."

With the exception of the rolling mills, all the machinery is driven by electric power, and electric lighting is provided for every section of the works. These plants were supplied by The Siemens-Schuckertwerke, The Lancashire Dynamo & Motor Co. and Messrs. Ballis and Marcom.

In connection with the railway supply, a company known as the Yangtsze Engineering Works, Limited, is establishing a plant in Hankow to manufacture and supply bridge material, railway trucks, coaches, etc.

While the output of the works for 1907 did not exceed 70,000 tons of pig iron, it is estimated that with the complete equipment in operation, the output for 1908 will reach 150,000 tons of pig iron. Managing Director Lee is still in charge of the works. He is a native of Kiangsu and has been associated directly with the remarkable history of the institution. To his personal efforts is due the present promising condition of the works.

Among the firms who furnished much of the machinery for the plant are Messrs. Davy Brothers, Daniel Adamson and Co., Kraven Brothers, Roberts, White, Gebroeder Klein, Bechem and Keatman, Hamil and Lueg, and Wellman-Seaver-Morgan and Co.

In connection with the formation of the big syndicate, the following announcement was recently made from Peking by the correspondent of the *North China Daily News*:

"According to an Imperial Rescript H. E. Sheng Kung-pao, newly-appointed Junior vice-President of the Ministry of Posts and Communications, and Imperial Commissioner of Tariff Revision and negotiations with Germany, Italy and some other lesser Western Powers, has already obtained sanction from the Chinese Government to form a big coal and iron corporation in the Yangtsze valley, with its head office at Hankow. The new company will be an amalgamation of the steel and iron works at Hanyang, the iron mine at Tayeh, both in Hupeh Province, and the coal mine at Pinghsiang, Kiangsi, with a paid-up capital of Tls. 10,000,000 which is to be divided into 100,000 shares of Tls. 100 each, while its subscribed capital will be Tls. 20,000,000. As in all other Chinese enterprises at the present moment, the subjects of foreign countries are strictly precluded from becoming shareholders of this corporation. Judging from the report of H. E. Sheng, who was previously Director-General of the three companies named, the corporation has certainly a prosperous future before it, if its affairs are properly administered. The main object of the promoters of the corporation is to develop coal and iron mines in central China with pure Chinese funds without assistance from foreigners whatsoever."

MINES AND MINERALS OF MANCHURIA

An interesting review of the mineral wealth of Manchuria has been made by Mr. J. B. Suttor, trade commissioner representing New South Wales, in his report on that section of the Chinese Empire which will prove of interest to mining men and capitalists interested in the development of mineral deposits in Eastern Asia: and follows—

"The whole of the eastern seaboard of Manchuria, as well as portions of the north and north-east, is hilly country, probably 200 miles or more wide on the east, while in the north there is more undulating country in between the mountains. It is reported that gold, copper, silver, and lead exist in large quantities, principally to the north of Korea. When at Mukden I had the pleasure of meeting an old Australian friend, who is a mining engineer, and who has recently visited many parts of Manchuria. At the time of meeting, my friend informed me that he was then on his way to bring a party of English mining experts to examine undeveloped country in the south-east, to the north of Korea and on the watershed of the Yalu. I inquired as to whether the minerals were as rich as represented, to which he replied that many of the mining concessions were over-estimated; at the same time, the future was likely to reveal great developments.

To the north of the Yalu, and in the province of Kirin, there are roving bands of murderers and robbers, and if there is one blot on Chinese administration, it is the lawless state of affairs that is permitted to exist, not only in Manchuria, but also in the north of China. Probably the most bloodthirsty wretches are to be found at the places named in Manchuria. So far, they have not molested foreigners so much as their own nationals. A few days before I travelled north the train was "held up," and several of the Chinese passengers killed. The Japanese authorities, so far as the railway is concerned, are now taking such precautions that such bold attempts are not likely in future to be so successful. In the extreme north of Kirin, and about that part of the country occupied by the Siberian railway to Vladivostok, a worse state of affairs exists. The Chinese robbers (Hunghutze) are evidently hand-in-glove with Russian criminals of the lowest type, who are infesting the country in all directions. A few days ago the mounted bandits fired into the Russian express and killed one of the passengers—this in spite of the fact that each train carries a certain number of soldiers armed and with fixed bayonets. At all centres where mining for gold or silver is carried on a similar reign of terror exists. Lately the Chinese Government, always slow to action, have been prevailed upon, and to-day have over 15,000 troops in Northern Manchuria to preserve order and endeavour to capture the ringleaders or robbers. When they are fortunate enough to do so—purely by the merest chance—short work is made of the robbers. In my opinion the Chinese methods of capture are a burlesque. I have seen small bands of soldiers marching about on foot in the open—they do not appear to leave the beaten tracks—and they make their marching so conspicuous that the robbers evidently find it an easy matter to avoid capture. Again, the villagers are so hand-in-glove with the mounted bandits that they have ample information in advance of the troops. Many of the supposed bandits have recently been executed; but foreigners often remark that when the Government send out an expedition some good

results must be shown. Therefore, if they cannot arrest the individual they are after a substitute is often procured and decapitated.

"Under conditions such as these, gold and silver mining operations are being carried on which are not looked upon as paying concerns, in consequence of the cost of protection to vested interests, and the maintaining of law and order—though the latter exist, I fear, in name only. Under settled conditions, it would appear that prospects are very encouraging, and that Manchuria will yet produce a vast amount of gold, silver, lead, and copper. The gold so far obtained is from the alluvial deposits, principally in the far north and on the Amur and Sungari rivers, and is spoken of as fairly coarse, but not found in large nuggets.

"Iron, coal, and soda are extensively worked. The iron deposits are about forty to fifty miles to the north of Mukden, and would appear to be extensively worked in quantities to meet local requirements, but not, as yet, for export, owing to the lack of facilities.

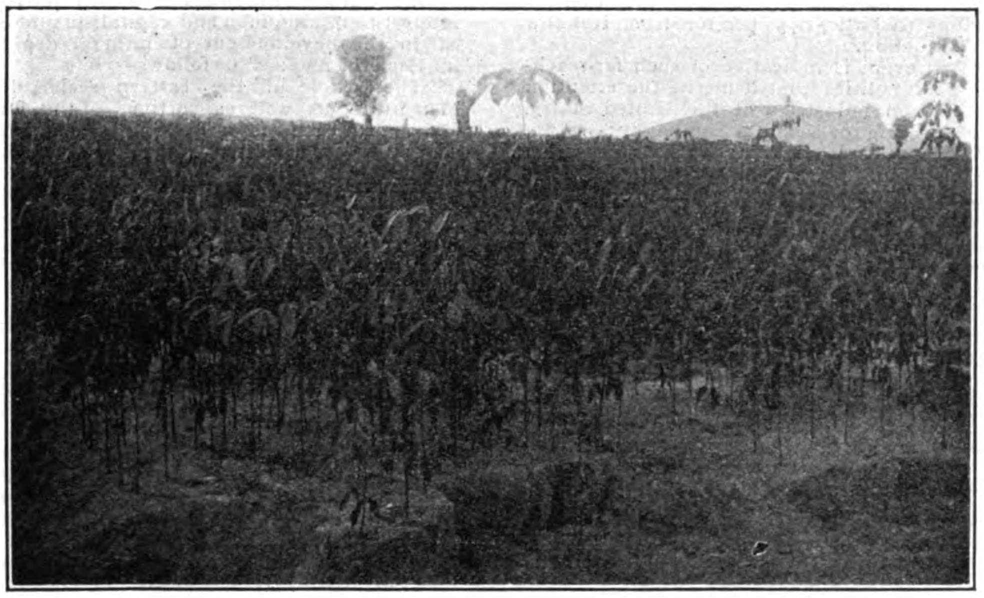
"In the southern portion of the north-western province of Heilung-chiang large quantities of soda are obtainable and exported in cakes to Southern Manchuria and other northern parts of China, where it is extensively used in dyeing establishments, and also to dissolve the gum of cocoons in connexion with silk reeling.

"Coal has been found in several places in Manchuria—viz., at Feng-t'ien, in the province of Liaoyang, known by the Japanese as Endai [Yentai?], also north and north-east of Mukden, the principal deposit being at Mu-tsi (Japanese name, Budzun). As regards the deposits in the district of Mu-tsi, the following will convey a rough idea of the coal available:—

Senkinsai	Seam 3,960 ft. wide.
Hakuho	" 4,800 "
Rokodai	" 3,300 "

"The most important deposit is at Senkinsai, the total estimate of available coal at the three places being about 300,000,000 tons. Other deposits exist close by at a place known as Kodioshi, on which an estimate has been formed that 140,000,000 tons are available for recovery, thus giving a grand total of 440,000,000 tons for the Mu-tsi district, near the ancient capital of Mukden, a branch line of railway having already been constructed from Eokaton, on the Manchurian railway, thirty-four miles easterly to the district of Mu-tsi. A much inferior coal has been found near the city of Kirin, in the province of that name. The deposits so found are distant as follows from the nearest ports of shipment, viz.:—

Seaport.	Miles.
Yingkow (also known as Newchwang) to Endai	86
Port Arthur to Endai	241
Dairen (also known as Tairen) to Endai	220
Yingkow to Mu-tsi	136
Port Arthur to Mu-tsi	291
Dairen to Mu-tsi	271



RUBBER NURSERY ON THE BATU PUTCH ESTATE, PROVINCE OF WELLESLEY, PENANG

OPENING OF WESTERN CHINA

Consul Mason Mitchell, reporting from Chungking, gives the following information of the little-known region of western China and the Tibetan borderland:

Tatsienlu, in the province of Szechwan western China, is the last town before reaching the Tibetan border. It is situated at an elevation of 8,400 feet, in the high mountains that extend through western China into Tibet. To reach Tatsienlu from Chungking it requires twenty-one days and from there to the Tibetan line eighteen additional days, the route crossing mountain passes over 15,000 feet high.

Until the present dynasty the Tibetan boundary line extended as far east as Tatsienlu, but under the present régime it is now drawn eighteen days' travel farther west, at the town of Batang. As this border strip of territory is mostly populated by Tibetans, they are under the jurisdiction of 3 Tibetan kings, each having his district, but all under the sovereignty of the Chinese Government.

Tatsienlu is a small town, with low wooden houses and a population of 9,000, mostly Tibetans. Its strategical and commercial importance is due to being the gateway to Tibet and the high plateaus to the northwest. In this district are the splendid grazing pastures, where a fine quality of wool is produced. Farther on is the Tachin River, which forms the boundary between eastern Tibet and one of the aboriginal Chinese tribes called the Mantzu.

A large trade is done here in rhubarb and musk, the latter taken from the small hornless deer plentiful in this part of China. Of the exports of this district musk is the most valuable, the price of the medium quality being thirteen times its weight in silver.

The product is obtained from a sac-like gland in the abdomen. It is carefully dried and sewn in small bags, called musk pods, of 1 ounce each, made from the skin of the animal. The musk deer of north-western China is an allied species and is only found at an elevation over 8,000 feet. It stands about 20 inches at the shoulder, but its chief characteristic is the absence of antlers in both sexes. The males have tusks protruding from the lower jaw to a length of 3 inches. The species is known as the Moschus sifanicus.

Next in importance of exports is wool. This trade of late has diminished, owing to the disturbances on the border. The coarse sack-like wool cloth "mu-tsz" is worn by all Chinese coolies, while a fine grade dyed red called "pulu" is the clothing of the higher class of the Tibetans. The lower classes, such as yak and pony drivers, wear entirely undressed sheepskins. About 45,000 pounds of wool is received annually in Tatsienlu.

GOLD MINING—TEA AND AMERICAN DRILLS—NEW RAILROAD

Gold is known as "Huang huo" and is brought for sale in form of dust, though sometimes nuggets are found. From 5,000 to 7,000 ounces come to Tatsienlu annually. But little profit is made there, as it brings only $20 to $24 per ounce. The Tibetan confines mining to washing the alluvial sand in the river beds. He is averse to outsiders mining in his country, his antipathy to them being very great. The Tibetan wishes to be let alone and strongly resents foreign intrusion.

The exports from western China into Tibet consist almost entirely of tea. The shipments via Tatsienlu come principally from the town of Yachow, in Szechwan Province. The tea packages are made up in rolls about 3 feet long. Each carrier will take on his back from five to thirteen, according to his age and strength. The annual value of the trade is somewhat over $750,000. The taxation amounts to 20 per cent, the bulk of which goes to the salt and tea taotai at Chingtu, the capital city of Szechwan Province. There is also a small amount of American drills dyed in Yachow going forward for the Tibetan market.

A French railroad is in course of construction from Pakhoi, on the Gulf of Tongking, to Yünnan, the capital city of the province of that name, in the southwest of China. When completed it is proposed to extend it to Batang, a distance of about 400 miles. If this is done it will give eastern Tibet and western China an all-rail route to the sea and divert the traffic from the long and laborious route via the Yangtsze River. From Batang to Suifu, the head of navigation of the Yangtsze, is a march of thirty-two days over the mountains, some of which are 15,000 feet in height. From Suifu to the mouth of the Yangtsze at Shanghai is a distance of 1,600 miles, including the gorges and rapids of the upper part of the river.

NEW PUBLICATIONS

Telephone Construction, Installation, Wiring, Operation and Maintenance, by W. H. Radcliffe, E.E, and H. C. Cushing, jr., E.E., is an interesting volume that will prove of special interest to the amateur interested in the installation of small exchanges. It might be called a primer for those without the slightest knowledge of telephony and 125 illustrations are included to make every step clear to the student. The volume is published by the Norman W. Henley Publishing Co. of New York—Price, Net, $1.00.

McCluskie's Indian Directory and Guide for 1908 has been received and maintains the high standard of this publication now in its third year. Among the desirable improvements and additions are two useful alphabetical lists of the principal residents throughout India and Burma, both Foreign and Indian.

The Indian Trade Index, one of the most valuable features of the directory, has been thoroughly revised and enlarged and will be found of great value to the importer and exporter in every section of the East. The volume contains a comprehensive map each of Calcutta, India, and a produce map of Bengal. Published by the Baptist Mission Press, Calcutta. Price, Rs. 8.

A NEW APPARATUS FOR SUBMARINE OPERATIONS.

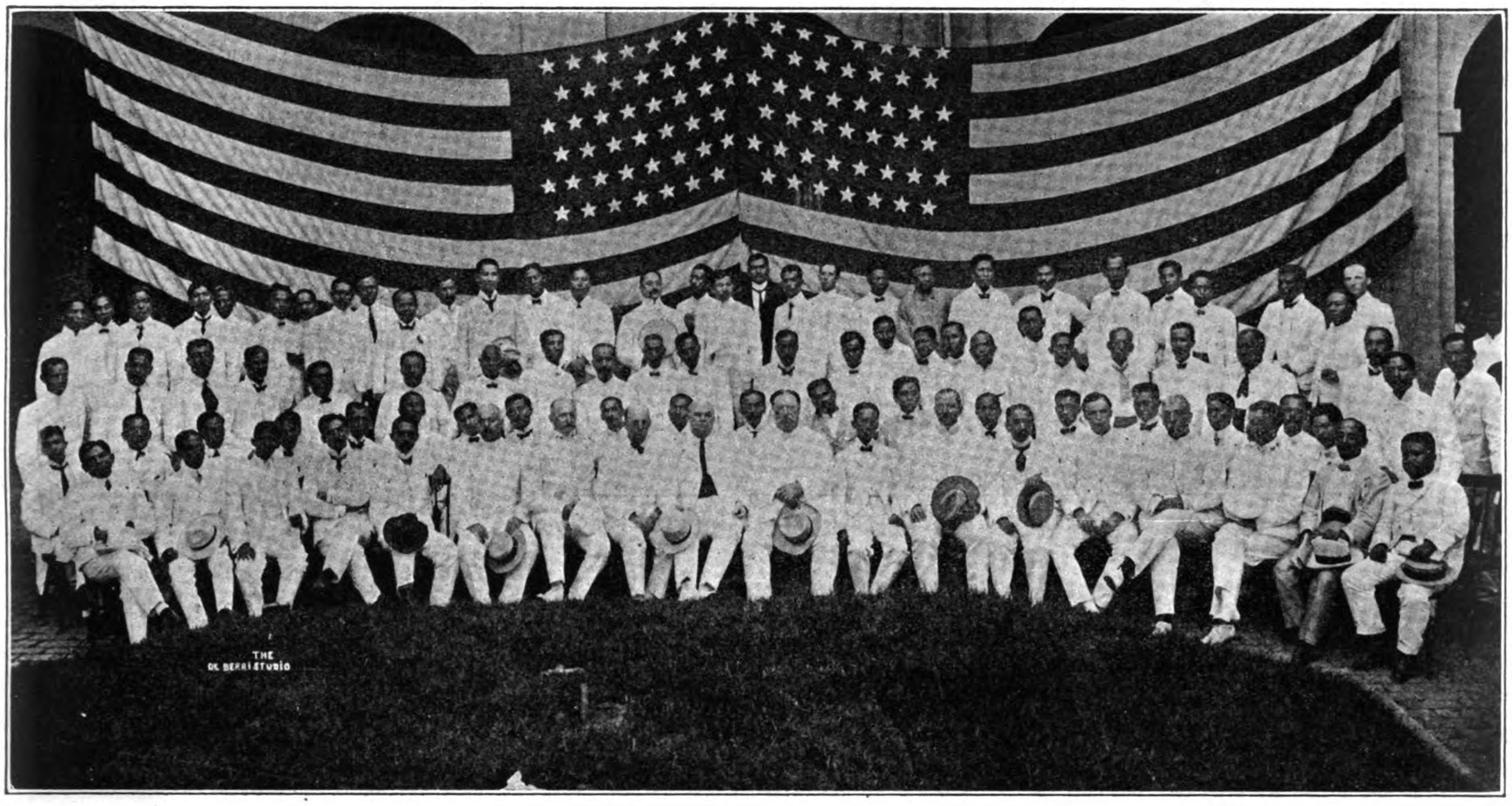
That which makes deep-sea diving dangerous is not so much a question of furnishing the diver with air, but the difficulty of protecting him from the weight of the overlying water, says the *Scientific American.* Each foot of descent increases the pressure on every square inch of his body by nearly half a pound. A depth of 100 feet develops a crushing pressure per square inch of 43 pounds, or a total of as many tons on the entire body of the diver. Naturally, such being the conditions, the diver's profession is not overcrowded. Few men can stand the strain of a 100-foot submergence, and many dare not venture below 50 or 60 feet. As occasion often arises when it is imperative that work be done at greater depths than these, efforts have been made of late to provide divers with metal suits which will completely protect them from dangerous water pressures.

An entirely new method of conducting work in the deep sea has been devised. The advantages obtained by this method are that the diver is protected in every way, and is at the same time in free communication with the surface. He breathes air under normal pressure, and is free to ascend or descend at any time without having to give a signal to operators above. Furthermore his connection with the surface is not maintained by means of a slender tube and line, but by a large vertical standpipe, which he may climb at will. The new apparatus comprises a caisson, or operating chamber, fitted at the top with a large collapsible tube or shaft, which extends to a float or barge at the surface of the water. The shaft is made up of a series of sections terminating in flanged rings, whereby the sections may be bolted together. Each section consists of a flexible covering stretched over a series of metal rings of I-shape cross section. By means of the chain hoist connected with the top of the operating chamber, the apparatus may be lifted up to the surface, collapsing the vertical shaft and permitting the operating chamber to rise into a housing in the barge. As the apparatus is raised the sections are unbolted and stowed away.

The operating chamber is entirely sealed, except for its connection with the tube. No air pumps are necessary, as free communication with the outside air is had through the open vertical tube. The chamber is provided with glass-covered windows, through which the surroundings may be examined. The side walls of the chamber are formed with protruding parts, which are furnished with windows on all sides, and serve as helmets for the operators. Armholes in these protruding parts are fitted with sleeves of flexible material. In use the operators climb down the vertical shaft, using the stiffening rings as a step ladder, and when in the operating chamber they can by means of the sleeves reach out and conduct the ordinary operations of the diver, while fully protected within the operating chamber. Articles that are to be lifted to the surface may be attached to grappling irons let down from the barge. To facilitate the work, electric lights may be lowered into the water outside of the operating chamber. When it is desired to move to a new spot, the chamber is lifted sufficiently to clear the bottom, and the barge may then be towed to the proper position. The lower sections of the tube are somewhat collapsed, as compared with the upper sections. This is due to the pressure of the water at the bottom; and owing to this collapsed condition the sections are heavier near the bottom, and consequently serve to weight the apparatus and hold the tube vertical.

An experimental apparatus of this type has already been tested in the James River by the inventor, Charles Williamson. To be sure, the fact that the operating chamber is not free to travel about without moving the barge, limits the field of its operations. However, there should be many conditions under which it could be used to advantage.

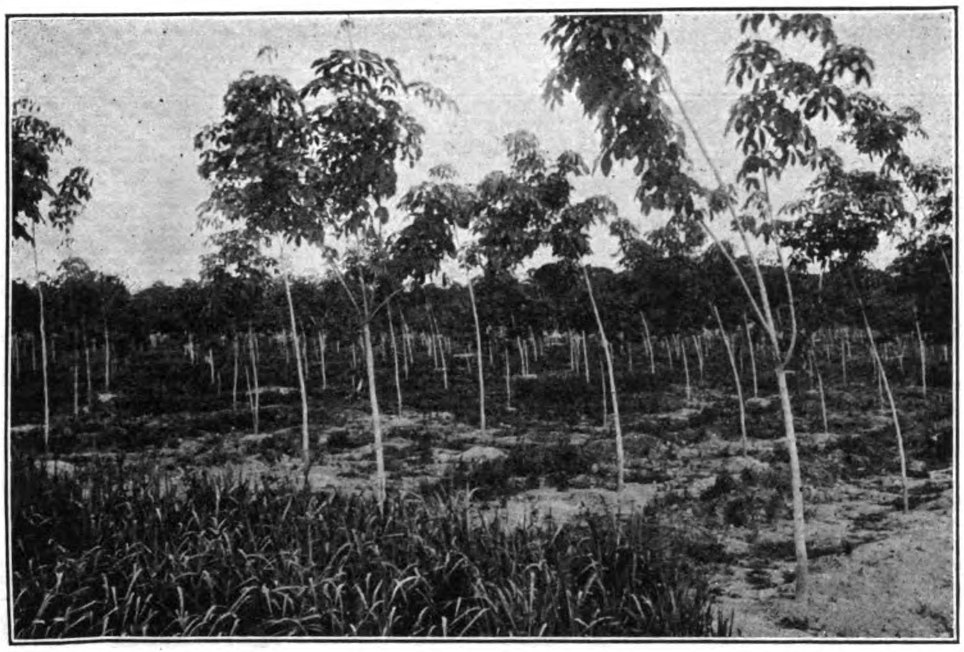
The device may be used alongside a vessel to provide access to the exterior of the hull for purposes of making repairs or cleaning off various marine growths. Aside from its advantages for diving operations, the apparatus may be used at amusement parks to furnish visitors with a view of under-water conditions or for exploring the bottom of a river or other body of water.



REPRODUCTION OF A PHOTOGRAPH OF GROUP INCLUDING SECRETARY TAFT, THE MEMBERS OF THE PHILIPPINE COMMISSION, GENERAL EDWARDS, CHIEF OF THE BUREAU OF INSULAR AFFAIRS, THE EXECUTIVE SECRETARY AND THE MEMBERS OF THE PHILIPPINE ASSEMBLY

MINERAL RESOURCES OF INDIA

The rich mineral resources of India are rapidly being developed and there is prospect that the next few years will show a remarkable expansion of this industry. In fact during the last two years the number of prospecting licenses has been increased from 30 to 50 per cent. A correspondent has reviewed the mining situation in the *Capital*, the well known financial journal, and includes in his article the following comparative table



TWO-YEAR OLD RUBBER SEEN ON THE BRIEH ESTATE, PROVINCE WELLESLEY, PENANG

which demonstrates the development made in the ten years ending 1906:

MINERAL.		1906.	1896.
Coal	Tons	9,783,250	3,863,700
Gold	Oz.	581,545	324,475
Petroleum	Galls.	140 553,000	15,019,000
Manganese Ore	Tons	495,700	56 900
Mica	Cwt.	51,430	12 830
Rubies	Carats	326,855	136,330
Salt	Tons	1,225,280	1,024,750

COAL.—Although the first coal mine was opened in Bengal in 1820, the great majority of the mines now worked were not open 20 years ago, and the real development of the industry hardly began till about ten years ago. The output has risen from 1,388.500 tons in 1886 to 3,863,700 tons in 1896 and 9,783,250 tons in 1906. India now stands at the head of the coal-producing dependencies of the British Empire. The actual amount of capital invested in coal-mining cannot be stated, but four of the largest joint stock concerns have a combined paid-up capital of £568,000, while the total capital of the limited liability concerns alone has been estimated at £3,250,000. During the past year there has been much speculation in Calcutta—shares have gone up in value and many new companies have been floated. The progress of the industry is handicapped by the lack of an adequate supply of specialized labour, but the prospects of high wages may in time wean from agriculture a sufficient force of natives and a sort of coalmining caste may gradually be formed. About 100,000 persons are daily employed at present, of whom two-thirds are men. By the aid of improved mechanical appliances the output per person employed below ground has risen from 101 tons in 1901 to 145 tons in 1906. Of the coal won in India in 1906 no less than 88 per cent came from Bengal. The Jherria field, opened in 1893 and now the largest producer, was responsible in 1906 for 4,065.607 tons, and the Raniganj field for 3.650,560 tons. Thus these two fields alone account for nearly four-fifths of the total Indian outturn. Outside Bengal the most important mines are those at Singarni, in the Nizam's territory, where the production in 1906 was about 468,000 tons. In Assam it amounted to 285,500 tons. In other parts of India there has been some decline, especially in the Central Provinces, but the output of this region is certain to increase greatly in the near future. In spite of the partial falling off just noted, the total Indian output in 1906 was 16 per cent. above that of 1905, while the value was 35 per cent. higher. There has been a general improvement in the quality as well as the quantity of the output in recent years. This has been accompanied by rapid growth in the exports, which last year represented 9 per cent. of the production. Almost all the exported coal is shipped from Calcutta, and the principal external markets are Ceylon and the Straits Settlements, which in 1906-7 absorbed 43 and 31 per cent. respectively of the total shipments. Imports of coal into India in 1906-7 were only 257,000 tons. The coal consumption in India itself is distributed roughly as follows:—Railway consumption, 2,700,000 tons; bunker coal (including river steamers), 1,450,000 tons; jute and cotton mills, 1,110,000 tons; other forms of consumption, 2 965,000 tons. The railways consume about 30 per cent. of India's whole output, while only 1 per cent. of what they burn is imported. Nearly all the steamship lines that touch at Indian ports use Indian coal mostly unmixed. As the coal is worked near the surface and labour is cheap, Indian coal has a lower value at the pit's mouth (3s. 11d. per ton in 1906) than that of any other country. The enhanced demand in 1906 made the trade abnormally active and caused a considerable rise in prices. Improvements in loading and despatching the mineral are required in order that the ever-growing demand may be promptly met.

MANGANESE ORE.—The Indian manganese ore industry began about 15 years ago with the quarrying of deposits in the Vizianagram State (Madras). The output rose from 3,130 tons in that year to 92,458 tons in 1900, when richer deposits were attacked in the Central Provinces, which now yield far more ore than the Vizianagram mines. The low range of market prices placed a temporary check on production in 1903 and 1904, but in 1905 the output rose from 150,297 to 253,896 tons, while in 1906 the production reached the high figure of 495,730 tons, or nearly double that of the preceding year. The chief factors in this remarkable growth were the temporary cessation of the manganese industry in the Caucasus, and the activity of the steel manufacture in the United Kingdom, United States, and Germany. The unprecedented demand caused a great rise in prices. Low grade ores that were sold at a profit in 1906 would not have paid the freight charges in 1904 and the early part of 1905. Thus the unit value of manganese ores carrying over 50 per cent. Mn. at United Kingdom ports in 1904 was only about 9½d., while at the close of 1906 it was 1s. 4½d. This advance in prices stimulated the production of lower grades of ore. There was great activity in prospecting, and new quarries were opened. Owing to the fact that the deposits are rich and easily worked, India has become the largest producer of the ore, having outstripped Russia and Brazil. There seems little doubt that she will maintain the firm hold she has secured in the world's market. In the Central Provinces the ore is raised mainly in the Nagpur, Bhandora, and Balaghat districts, where the grade is very high, ranging from 51 to 54 per cent. of metal. Its high quality enables this ore to bear the heavy rail freight of 500 miles, besides the cost of shipment to Europe and America. Other important sources of ore are Vizianagram, the native States of Mysore, Sandor, and Jhabua, and the Panch Mahal's district of Bombay, while finds have recently been reported from Lus Bela State. The Carnegie Steel Company is said to have acquired a large deposit in the Balaghat district, while a property in Mysore has been purchased by a German firm. The revival in the Caucasus manganese industry and the depression in the American and German steel trades have caused a decline in prices, especially in the market for low grade ores. Thus in a year, the price of Mysore manganese has fallen off 40 to 50 per cent. The Indian exports of the ore have expanded from 282,000 tons in 1905 to 453,000 tons in 1906 and 581 000 tons in 1907. There is talk of establishing a reducing plant in India, as the present method of shipping crude ore involves heavy payments for freight of waste. The superior Indian ores are specially suited for the manufacture of ferro-manganese and spiegeleisen. Many of them have not only a high percentage of manganese, but also a low percentage of phosphorus and a low humidity. Last, and not least, the Indian mines have a good reputation for faithfully executing their contracts.

PETROLEUM.—The important Burma oil-fields form part of a belt extending from Assam to the Dutch Indies. The oldest, most developed, and most successful of the Burma fields is that of Yenayaung, in the Irrawaddy Valley, where native wells have been in operation for a century. Drilling was started in 1887, and the output, which had been only 2,000 000 gallons in 1886, rose to 40,000,000 gallons in 1902, and to no less than 89,500 000 gallons in 1906. The next largest of the Burman fields are the Singu (opened in 1901) and the Yenangyat (1891), which produced 35,000,000 and 13,000 000 gallons respectively in 1906. The local value is estimated at about 1d. per gallon of crude oil. In Assam the oilfield produces about 3,000,000 gallons a year. In India (excluding Burma) the consumption of Burma and Assam petroleum has largely increased, and, whereas eight years ago the proportion of Indian to foreign oil consumed was 5 and 95 per cent., the relative proportion in 1906-7 were 53 and 47 per cent.

GOLD AND RUBIES.—In British India the production of gold is insignificant. In 1906 no less than 97 per cent. of the total Indian output—viz., 581,545 oz., valued at £2,230,284 came from a single reef in the Kolar district of Mysore. The Nizam's Hulti mine yielded 13,784oz. Gold washing is carried on in many districts, but no record is available of the amount thus obtained. The only company working for rubies on a large scale is the Burma Ruby Mines (Limited), but there are numerous mines and washings in the Mogok district, worked by Burmans possessing hereditary rights, and from these are obtained large quantities of gems, including some of great value.

THE NEW SHANTUNG RAILWAY

A correspondent of the *Celestial Empire* gives an interesting and comprehensive review of the progress in railway construction in Shantung and the industries affected thereby in the section traversed. The correspondent writes:

"Known as the Tai-tsao Railway this line, something over 80 li in length, is projected to run from the coal mines 20 li north of Yihsien down past that City to Taierchwang, the leading port of South Shantung on the Grand Canal.

"TSAO-CHWANG.—Is an ordinary Chinese village of a couple of hundred families remarkable for nothing else than that it gives its name to the mines in the near vicinity. The town of note in the vicinity is Ch'i tsun. This is a place of some 800 or 900 families, famous in all the region round about for its potteries. The great Kang water jars, used also for holding grain, some of them considerably larger than a flour barrel, are made here, while bowls and small jars are made by myriads. There are 13 kilns and each one of them can turn out between $600 and $700.00 Mex. worth of products per month. Nearly all, of indeed not all, the kilns are controlled by one very wealthy family of which one of the members is a Hanlin and a Censor, Tsui by name. This town shares with Yen Hsien, in Central Shantung, the pottery trade of this section.

"YIHSIEN.—Is a trim little city attractively located at the opening of a valley. It was formerly spelled Ihsien and so appears in the Bond advertisement of the Tientsin-Pukou railway where it is mentioned as the point where the German section of the railway connects with the British section. The P. O. has changed the spelling to avoid confusing the place with an Ihsien in Nganhwei. The city is prosperous but is not higher than a third rate district city as regards size and trade.

"TAIERCHWANG.—This is a place of about 600 families. It has a brick wall surrounding it and one very fair business street. It almost supports a telegraph office and has also a C. I. P. O. with daily mail from the South. It is eight days stages by boat from Chinkiang. that is something over 700 li. Here is an office for the collection of revenue from boats, here is another office established by the Board of Commerce, Industry and Agriculture to see that the other office does not unduly oppress the boatmen and traders. The following are some of the principal distances from Taierchwang:

S. E.	via	Canal	to	Yaowan	110	li
"	"	"	"	Hsu Chien	180	"
"	"	"	"	Tsingkiangpu	360	"
"	"	"	"	Chinkiang	720	"
N.W.	"	"	"	Hawchwang	83	"
"	"	"	"	Hsia Chen	140	"
"	"	"	"	Tsiningchou	360	"
N.E.	"	land	"	Ichowfu	180	"
S.W.	"	land	"	Hsuchowfu	110	"

"THE MINES.—It is plain from the above table that the outlook for the mines is very favourable. Tsining is the second largest city of Shantung, somewhat decadent now owing to the diversion of the grain transit from the Canal to the ocean but still a very large and by no means dead place. Ichowfu and Hsu Chowfu are flourishing cities of 60,000 or 80,000 population and centres of populous regions. Su Chien is a prosperous district city situated on the old bed of the Yellow River from which it draws sand for its glass-works. These are under the care of several Englishmen and use large quantities of coke. The road from the mines to Taierchwang is traversed by one continuous stream of barrows wheeling coke. I counted 50 in a couple of hours. Each barrow holds 600 catties and upward and the poor fellows receive about 500 small cash per day for their toil. Most of this coke, it is said, goes to the glass-works. Tsingkiangpu is one of the big towns of north Kiangsu.

"THE OUTPUT.—At the mines is at present two hundred tons a day. The coal is only from two to three hundred feet deep and in places the seam is over 20 ft. thick. The coal is of excellent quality, bearing the reputation of being the most valuable deposit in the province. It is very largely used by the Chinese in the general vicinity for domestic purposes and has been of great use to them this present year on account of the high price of Kao-liang stalks and other vegetable fuel so extensively used in North China. There are thirteen shafts or rather holes now on the plot but at present only three are working. The coal is hoisted by a steam engine in rope baskets containing about 120 catties. The men go down for a 24 hours' shift and are paid by the basket, 100 small cash per basket. They can if good workmen earn half a dollar for their long hard turn of 24 hours. Two of the thirteen holes are used for taking out the water which is brought up in big leather bags, by a steam engine.

"The coal is quite soft and is remarkable because of its freedom from lumps. About a hundred coke ovens are in close proximity to the mines.

TAPPING RUBBER TREES ON WILSON'S ESTATE, FEDERATED MALAY STATES

"The premises are quite extensive probably three li long and two li wide. The concession granted by the Imperial Government to the company embraces a territory ten li square. The leading spirit of the company is Hon. Chang Lien-fen at present Salt Commissioner of Shantung. So far as now known coal is found within a region 70 li long by 40 li wide. Another Company headed by a rich Chinese of the vicinity, Mr. Liang, has another, but much less valuable concession near by. The plan is to introduce foreign machinery at an early date. A shaft will also be sunk 40 li N. W. of Tsao-Chwang within 10 or 20 li of the proposed line of the Tientsin Pu-kou railway. There is a great future for the mines as the railway will make such large use of their coal, no other mines being so conveniently within reach of it.

"It is almost a certainty that in the near future a railway will be built connecting the mines with the recently opened port of Haichow, in north-east Kiangsu. This will give the mines an outlet to the ocean. The real port is Ching Kou not Haichow. The line will be easy of construction, running a hundred miles through the fertile and populous Ichow-fu plain and touching that city.

"THE TAI-TSAO RAILWAY.—Is to be completed before the middle of next year. The work on 90 li of earthworks is well under way and will be largely completed before the rainy season of this year. The summer rains will greatly solidify the embankments and in September the laying of rails will commence. The point at which delay is most likely to occur is at the 60 metre bridge crossing a small river at Yihsien. There are only three other bridges and they altogether do not exceed 70 metres in length. The grade is extremely easy, and there are two cuts and these very light ones on the entire line. In addition to the two termini and Yihsien, there will be but one other station, that at Ni-kou, a scattered village of some three hundred families half-way between Yihsien and Taierchwang. The material, that is bridges, rolling stock, rails, etc., comes through the firms of Arnhold, Karberg and Co., and Carlowitz and Co. It is said that the present concessionaire had to make a stiff fight at Peking to keep his prize from following the path of so much other mineral wealth of Shangtung in passing under German control and that the matter was compromised by the arrangement that in the development of the mines German machinery should be used. It is generally supposed that there is also some German capital invested therein.

"The railway however is overwhelmingly capitalized by the Chinese, nearly all Shantung high officials being interested therein, Szechwan and Chekiang also being largely represented as well as capitalists in Shanghai and Tientsin.

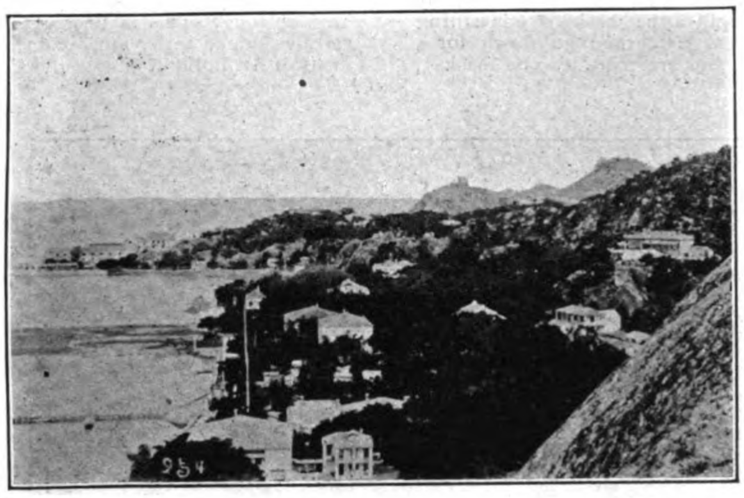
"The Railway will be almost entirely a coal road. Eight cars and 3 locomotives have been ordered for this traffic, machine shops will be erected at Taierchwang and possibly some passenger cars built there. Limestone is abundant in the nearby hills and already sixty trucks and 10 li of light railway are piling in the necessary stone.

"The coal yard and wharf at Taierchwang wil be a large affair. About 45 English acres have been purchased in a bend of the Grand Canal which bounds it thus on two sides. Along these two sides 700 ft. of wharfage stone masonry are being constructed while on the two remaining sides a circumvallating moat has been constructed which will admit boats from the Canal. The whole plot has been elevated 5 ft. above the adjacent territory.

"THE CANAL.—Is sadly in need of dredging. The German Mission of South Shantung has just bought a launch drawing one foot of water which will make the trip from Chinkiang to Tsining in four days. Just now, however, only boats drawing half a foot can navigate certain sections of the upper part of this route."

THE PORT OF SWATOW.

Swatow, in Kwangtung, has always had a great stand by in its export of sugar, but the cultivation of the cane has had a considerable check owing to cheaper sugar from Java imported into China direct, or after treatment at the three refineries in Hongkong. Cheap Javanese labor (15 cents a day) has much to do with the inability of the Swatow sugar planter to conduct a profitable business. Prices are now so low as to leave little or no margin of profit to the grower and boiler and the export has fallen off about 50 per cent in recent years.



KAKCHIO, FOREIGN SETTLEMENT, SWATOW, VIEW FACING WEST—CHINA SUGAR REFINERY ON THE POINT

A short railway of standard gauge, 24½ miles in length, connects the port of Swatow with the city Ch'ao Chou Fu to the North. In 1903 a wealthy Chinese merchant obtained the concession for this line, employing a Japanese contractor to carry out the work, and Japanese employees of the Railway are in evidence at every station. Altogether there are nine stations in the 24½ miles, and the fares for the whole distance are 1st class 1 dollar 30 cents; 2nd class 80 cents; 3rd class 50 cents. Three trains run each way daily and the scheduled time between the termini is one hour 31 minutes. The line is said to have cost 3,500,000 dollars to construct, and pessimistic views are held by Europeans in regard to its condition. It is said to be running at a loss as it taps no large populous centres *en route*.

THE SHANTUNG RAILWAY

The Shantung Railway, completed in 1904, is about 245 miles long, running between Tsingtao and Tsinanfu, the capital of the province of Shantung, with a branch line of twenty-four miles to the Poschan coalfields, says the *Deutsche Banzeitung* of Berlin. The longitudinal section shows that the main line is made up of forty-two per cent level, twenty-nine per cent rise, and twenty-nine per cent fall, with a maximum grade of six per cent. The permanent way has been constructed to sustain ordinary traffic at a speed not exceeding 37.5 miles per hour. The article contains detailed accounts of the survey, as well as full particulars with regard to the cost of land, labour, transport and materials. The survey covered an area of a strip of land varying in breadth between 500 and 2,000 yards, and cost about £36 per mile, being completed at the rate of ten miles per month. The land was expropriated in accordance with Chinese law, 1s. 1d. being paid per square yard, with a surcharge of eight per cent for land in crop and near the townships. The earthwork was sublet in contracts of six miles in length, and was paid for at schedule prices, 1s. 4d. per cubic yard for ordinary earthwork, and 10d. per cubic yard for rock. All bridges and culverts were standardized, as well as the wooden and steel scaffoldings used for erection.

The railway was five years in construction and cost:—

	£
Land	89,700
Earthwork	148,000
Level crossings and fencings	2,700
Bridges and culverts	728.000
Permanent way	759,000
Signals, block-houses, etc.,	13.200
Stations	106,000
Repairing-shops, etc.	85,000
Materials (coals, etc.)	310,000
Administrative expenses	203,000
Interest on capital, etc.	200.000
	£2,644,600

or, including interest on capital, about £9,200 per mile. The gross receipts of the railway in 1905 were about £680 per mile, of which two-thirds were derived from goods-traffic. The working expenses for the same year were £265 per mile.

CEYLON TEA

At the annual meeting of the Ceylon Tea Traders' Association the following report on the crop for the year 1907 was included in the chairman's review:

"The Ceylon tea crop (182,023,732 lbs), for 1907, was the largest ever produced in the island, being nearly 10,000,000 lbs in excess of the yield for 1905, which was the previous record, and 12,000,000 lbs more than the outturn for 1906. It is satisfactory to know that the increase is the result of climatic conditions and of more careful and liberal cultivation. Speaking generally, I believe quality was well maintained during the past season and I trust the same system of careful plucking may be followed in 1908. The larger output cannot be attributed to fresh acreages coming into bearing, as the area of tea clearings planted up, during the past few years, is very limited.

"In 1906 the range of averages of weekly sales was from cents 30½ to cents 39 whereas in 1907 it was cents 36 to cents 45. During the latter season 75 per cent of the weekly averages were above cents 40, and the averages for the year was cents 41, being the same as for 1896. In the intervening 10 years the rate never got nearer to this average than cents 38. It is interesting to note, however, that in 1895 the average was cents 47, so that, if business is good, there is the possibility of a further rise in prices this year. The advance has been chiefly in rates for teas from low and medium estates. Teas grown at high elevations have not benefited appreciably. After 10 years of waiting it was time for Low-country teas to have an innings, and the dividends being paid on last year's results by companies owning such properties show that they have reaped a fair harvest. High rates have no doubt made business from a buyer's point of view somewhat difficult but when the higher level has been established this will cease to be a disturbing element. Last year's shipments to United Kingdom were above those of 1906 by about 4,500,000 lbs. Russia took more tea from Colombo than any other country, outside of Great Britain, probably, in all, close on 28,000,000 lbs. including Greens and Dusts, &c., for brick making. The increase on 1906 is nearly 50 per cent. Australia came second with fully 24,000,000 lbs. and America third with 12,500,000 lbs, being slightly under exports to that Continent in 1906. Recent financial troubles there may account for the want of elasticity in that market, but, in view of the large sums spent in America by the Thirty Committee, better results were expected. I know it is argued that Ceylon and Indian teas go further than China's and that therefore a decrease in weight of tea used may mean an actual increase in tea drinkers."

BRITISH INDIAN RAILWAYS

The reports of Indian Railways which come to hand continue to bear witness to the prosperity of the companies during the first half of the current year, says the *Planters Gazette*. The Great Indian Peninsula's net revenue showed an increase of no less than 13.05 per cent., while the net earnings of the East Indian Railway amounted to Rs. 2,70,27,429, compared with Rs. 2,66,89,893 in the corresponding half of 1906. In the case of the Bengal-Nagpur the net receipts were Rs. 88,33,581, as against Rs. 83,42,733. The question of capital expenditure looms large in the reports of the two first named companies. The directors of the Great Indian Peninsula state that they have recently learned that Mr. Morley has set apart another £1,000,000 for the purchase of additional rolling stock, and that the company is to receive 800 wagons as its share. But, unfortunately, they add that the company's proportion of the additional capital grant of a million, which was referred to in the previous report, was no more than £90,000. The Secretary of State has, however, made a proposal to vary the company's contract of 1900 with a view of giving it power to raise, under his sanction and guarantee, whatever funds may become necessary for the development of the undertaking. The negotiations, however, are not yet completed. The East Indian Railway directors are seeking authority for the issue of debentures or debenture stock to an amount not exceeding £2,000,000 in order to meet expenditure for lines under construction, rolling stock, and improved accommodation for the constantly growing traffic. The Board of the Burma Railways also ask that the additional borrowing powers conferred upon them be extended from £1,000,000 to £2,000,000, and that the rate of interest be left to their discretion, instead of being fixed at 3 per cent. In the meantime the Secretary of State is advancing funds to the Burma Railways at 3½ per cent., and the Board are negotiating with him as to the course it may be advisable to take in case of the difficulties of raising a loan by a debenture issue continuing. It is obviously out of the question in the existing state of the money market to raise money at 3 per cent.

* THE HORNSBY CHAIN TRACK TRACTOR

The remarkable achievements of this locomotive claim the careful attention of mine-owners and others engaged in transport over difficult country. The Hornsby "Walking Engine," or "Caterpillar," as it has been styled by its military drivers at Aldershot, is the invention of Mr. David Roberts, M. I. Mech. E., managing director of Messrs. Richard Hornsby & Sons, Limited. Describing his system, the inventor says:—

"It provides an endless chain that travels round the weightcarrying wheels, forming on the inside a track on which those wheels run. The "Chain Track" is formed on a number of feet, so linked together as to render the bottom portion of the chain a rigid arc with a radius of about 19 ft., the inside of which is used as a track for the weight-carrying wheels. The links which render the chain rigid when pressure is exerted from the outside, make it flexible on the inside, so that it bends round the two sprocket wheels at either end of the arc. The rear one of these is the driver, which, the sprockets being engaged in the links, propels the engine by pulling at the chain, the chain being held to the ground by the weight while the weight-carrying wheels pass over the inside track.

"The upper part of the chain pulled over by the driving wheel moves forward and is guided by the front sprocket wheel to form a fresh and endless track. The weight of the tractor being carried on the long curved inverted arch of the chain tracks, the pressure on the ground varies with its condition, and whilst on hard roads the pressure is less than with ordinary wheels, on soft ground the weight is so distributed that it can travel with safety, even where draught animals may not venture, on account of the pressure on the under surface of the chain tracks being less than that due to the weight of animals on the surface of their feet. For the same reasons the grip on the ground is vastly greater than it is with ordinary wheels, enabling loads to be hauled over ground which has hitherto been impassable. The chain track has a radius which is equal to a wheel of 38 ft. diameter.

"The method of turning is ingenious, and so efficient that the tractor can turn in double its own width. This is done through powerful brakes applied to the compensating gear. When it is required to turn, one of the chains is braked hard and the other allowed to travel. This easy manipulation is of great advantage for manœuvring, and saves a great deal of time."

The machine has been successfully tried over the following conditions of ground:—

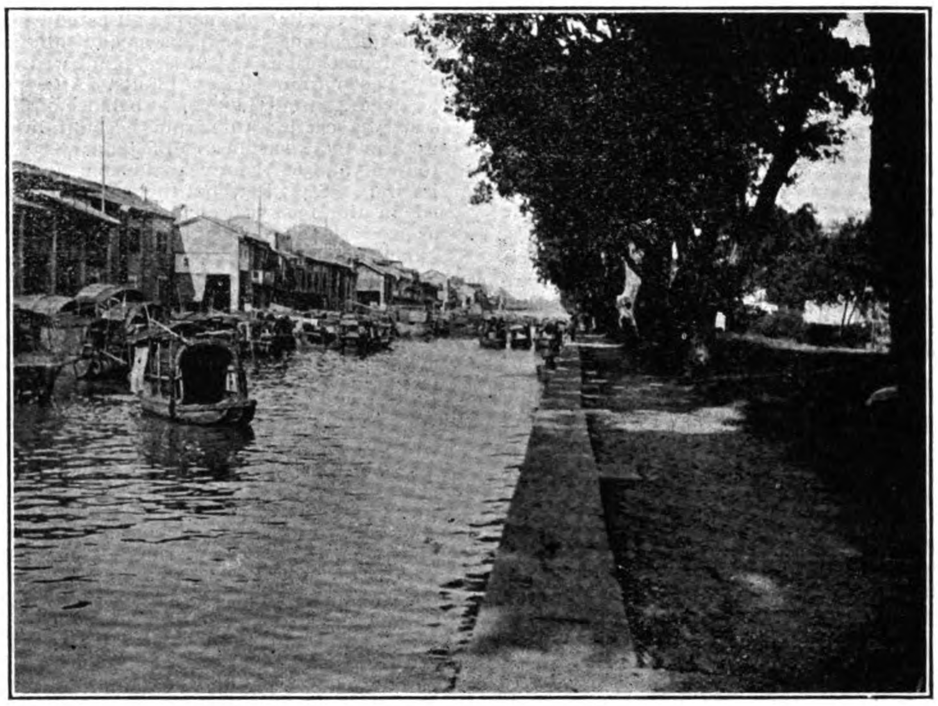
(1) Swampy Ground.—In actual experiment a lorry loaded with 3 tons was hauled by five horses upon swampy ground, where it sank to the axles, the horses failing to drag it out. Again, a two-wheeled cart carrying 1½ tons was hauled by four horses upon the same ground, with a like result, the horses' legs sinking 2ft. in the ground, due to the powerful effort they exerted. The engine was then connected, and the swamp was now easily traversed, an additional trailer loaded to 5 tons being drawn at the same time.

(2) Uneven Ground.—An ordinary wheel meeting a large stone has to suddenly lift itself with the whole of the weight above it. The only effect of an obstacle such as a stone, rail, tree-trunk, or hillock in the path of the Hornsby Chain Track Tractor is to give a slight additional inclination to the chain track, which is raised and employed as a bridge for the weight to gradually surmount.

(3) Ditches.—In crossing ditches, the Chain Track Tractor moves on until it reaches its critical point where the front overhangs the ditch, when the forward feet move gently on the farther side, and the rigid chain track forms a bridge over which the engine travels. Ditches in width and depth sufficient to bury the front steering wheels or the rear driving wheel of an ordinary traction engine are crossed with safety and ease.

(4) Dry and Soft Clay.—Owing to the extended surface of the chain track upon which the weight-carrying wheels rest, the Tractor does not sink into the ground, and by reason of its extended grip and great adhesion, considerable loads can be carried over exceedingly soft clay and deep dry sand.

(5) Hills.—The Chain Track Tractor has quite phenomenal hill-climbing qualities. A bank of soft clay, 20 ft. high, which when measured showed an incline of 1 in 2, was mounted with ease.



LOOKING DOWN CANAL ROAD, BRITISH CONCESSION, SHAMEEN (CANTON), CHINA

(6) Snow and Ice.—The Tractor has hauled considerable loads up to the full power of its engine up hills of 1 in 10 covered with ice 1 inch thick, without breaking the ice and without slipping. This was done without ice-spikes, sand, gravel, or other artificial means being used to give adhesion, the Tractor simply relying upon the grip provided by the wooden surface of its feet.

Besides the Chain Track Tractor above described, the firm of Hornsby & Sons are now making their standard oil engine tractor on the model of the engine which won the British War Office prize of £1,000 in 1903. In countries where the roads are well made this is claimed to be immeasurably superior to the ordinary steam traction engine.

This oil engine was required by the terms of the War Office competition to haul a load up to 25 tons at a speed averaging three miles an hour for forty miles. Its own weight, when equipped with fuel, water, and stores for the journey, was required to be less than 13 tons.

Equipped with a double cylinder internal combustion oil engine, the Hornsby Tractor drew its load 58 miles, earning the prize of £1,000 and a bonus of £180 for the additional 18 miles. The weight of oil used was only one-seventh the weight of coal which would have been required for an ordinary traction engine, and the quantity of water used for cooling was only a few gallons instead of the 8 tons required by a steam tractor for the same load and distance.

With this engine as a model, the first Chain Track Tractor was constructed.

It has been said, and not without reason, that, possessing the double economy of fuel and water, plus extraordinary walking and climbing powers, the Hornsby Chain Track Tractor is destined to play a considerable part in the future economy of the world. It will be found hauling baggage wagons and drawing heavy artillery into position in the next war. It will haul wheat, wool, and tobacco to the railway or the factory. It will make it possible for mining operations to be carried on at a profit far from existing roads and railways.

On the confines of the Empire the question of transport is a vital and often determining factor in development.

The exploitation of the pasture or the mineral wealth is of no use to the colonist unless he can get his wool, his crops, or his ore to the market, in good time and at a reasonable cost. Road development, by which animal transport, however slow and expensive, is made practicable, as well as railway development, demands capital, and cannot be undertaken until there is a good prospect of earning a profit. In the meantime, the Hornsby system steps in to supply this want.

In South America there are cattle ranches within a hundred miles of the coast where difficulties of transport are such a hindrance to the development of business that the cost of transport places the stock raisers out of market. So, too, these districts rich in the copper, tin, and silver, which are untouched. because the cost first of getting the necessary mining machiney to the spot. and then of getting the metal to the market, is prohibitive.

Bullock wagons with 16 or even 32 bullocks, sometimes even 4 spans of 64 bullocks, carry only a few tons, require several drivers, proceed very slowly, not more than two miles an hour, doing not more, and generally less, than 15 miles a day. Camels carry small loads of from 300 to 500 lbs. each, but they will not make more than 15 miles a day, with a rest every few days, and a short journey of 100 miles takes more than a week to accomplish.

Steam traction engines and motor lorries are available where good roads exist, but that is the limit of their efficiency. They are useless for desert, swampy, or mountainous regions. The South African War tested the power and demonstrated the narrow limits of usefulness of the steam traction engine.

Where there are no roads, traction engines fitted with ordinary wheels cannot travel, and it has been with the object of overcoming the serious limitations of the ordinary wheels, and so extending the range of usefulness of mechanical transport into regions hitherto either only partially developed, or totally undeveloped, that this new system of mechanical traction has been invented.

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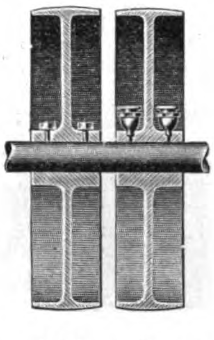
* *The Mining Journal.*

LUBRICATION OF LOOSE PULLEYS

It is a fact that Loose Pulleys are to the engineer a most bothersome piece of machinery, mostly due to the use of improper lubricants; generally, on account of imperfect alignment, too tight a fit or when subjected to an overload.



Bearings are liable to heat up due to the theoretically rough surfaces of two bodies, when one or both are in motion, being improperly lubricated by use of Oils which are thrown by centrifugal force from the bearing surfaces, leaving it dry; this will soon, by overheating, actually weld the parts together, called "seizing" and if the parts have seized and force is put to the relative parts, they will be strained, twisted or broken, causing a shut down.

It is apparent even to a layman that the most important condition to be met with in the care of machinery is proper lubrication and to prevent the liability of seizing and tearing apart of the relative portions of any mechanism or moving part.

This can only be successfully accomplished by the use of Albany Grease applied through a Loose Pulley cup. The special feature of this cup is the tube and the interior spindle, the latter being always in contact with the shaft, thereby conducting the least variations in its temperatures into the body of the grease cup no matter what position the cup may be in or speed of rotation the moving parts may have.

The centrifugal force is overcome, due to the Albany Grease remaining at the same consistency, except that portion adjacent to the spindle, which, liquifying, is drawn to shaft by capillary attraction or otherwise under the influence of molecular attraction, lubricating the bushing of the pulley.

When the loose pulley is at rest the grease stops its flow automatically and the bearing will be clean and free from the many objections attending the use of oiled bearings. There being no drip or spater causing annoying and expensive damages to material and fixtures.

The danger of fire which frequently occurs with oiled bearings or the damage to belts by the oil that is intended for the bearing, when loose pulleys are driven at high speed, produce endless troubles and annoyances to the Engineer. It has further been estimated that for every drop of oil actually worn out in lubricating a bearing, at least three other drops either never reach the surfaces to be lubricated or pass through unused, requiring an excessive amount of wiping; all this is entirely obviated by the use of Albany Grease which is a pure lubricant that has been in practical use for over 40 years and under the severest tests has been found the safest lubricant for all bearings, on account of its splendid wearing properties, having a great capacity for storing and carrying away heat, in other words, the property of keeping a bearing cool.

Albany Grease is made only by Adam Cook's Sons, 313 West Street, New York City, U. S. A.

GENERAL ELECTRIC COMPANY.

The sixteenth annual report of the General Electric Company, for the year ending January 31, 1908, shows gross profits of $6,586,653, after deducting all patent, general and miscellaneous expenses and allowances for depreciation and losses, and writing off $3,745,989 from factory plants. After paying $5,183,614 in dividends, a balance of $1,403,039 was carried to surplus account, bringing up the total surplus as of January 31, 1908, to $16,513,836. Last year the company's profits were $8,427,843, but the actual sales billed in the 1908 year amounted to $70,977,168, as against $60,071,883 in 1907.

The reports of the General Electric Company have for some time stood as an example of the way an industrial company ought to handle its finances and tell the public about them. The picture of the business year is made perfectly plain, and there are no frills in the asset and inventory values. The company has naturally had to make very heavy expenditures in the purchase of patents and will presumably have to continue doing so for many years to come in order to keep abreast with the best electrical science of the day. The value of its patents, franchises and good will account stood on the books of the company at $8,000,000 on January 31, 1897. On January 31, 1907, this account had been reduced to $1 by progressive writings off, charged to the current operating surpluses. During the 1908 fiscal year the company spent $872,346 in acquiring other patents, licenses under patents and in patent litigation, and promptly charged it off to profit and loss, so that the company's patents, franchises and good will still stand on the books at $1. This is an admirable record, and the manner in which the book values of the factory plants have been written off, year by year, is no less admirable. Starting in 1897 with plants at Schenectady, Lynn and Harrison, valued on the company's books at $3,958,528, the company during the subsequent 15 years to date has spent $30,892,486 on expenditures and betterments to its plants, making a total of $34,851,014, from which 22 millions have been written off for depreciation and replacement, leaving the book value of the plants, on January 31 of the current year, at $12,900,000, entirely free from mortgage or other lien; an average valuation of but $2 per square foot of floor space, including land, buildings, power houses, machinery, tools and all other equipment.

The company on January 31, 1908, had no floating debt at all and had only $1,759 517 in accounts payable as against $29,857,727 of notes and accounts receivable. It reported $12,250,721 of cash, as against $3,910,709 in January, 1907, the difference being in considerable part accounted for by the funds derived during the year by the issue of $12,872,750 of 5 per cent 10-year convertible debentures and by the sale of $1,594,600 of new capital stock. Thus the company's cash position is excellent, as it is highly important that it should be. Collections of its very large accounts receivable will presumably be slow in dull times, although the company actually collected some $66,000,000 from notes and accounts receivable during the year, as against $53,000,000 collected in the 1907 fiscal year. All but $3,544,586 of the $27,094,348, representing the face amount of notes and accounts receivable on January 31, 1907, was collected during the year.

Among the important orders received during the year were: One hundred and sixty-five-mile transmission for Great Western Power Company, California; Detroit tunnel electrification; Cascade tunnel electrification; Great Northern Railway; electrification of Southern Pacific suburban lines in California; electrification of Hudson tunnels; additional equipment for West Jersey & Sea Shore, and for New York City terminal of the New York Central.

The following table shows the company's sales and orders for the last six years:

	Sales billed.	Orders received		Sales billed.	Orders received
1908...	$70,977,168	$59,301,040	1905...	$39,231,328	$35,094,807
1907...	60,071,883	60,483 659	1904...	41,699,617	39,660,938
1906...	43,146,902	50,041,272	1903...	36,685,598	39,914,454

PEKING AND KALGAN RAILWAY TUNNEL

The piercing of the tunnel in the section of the Kalgan or Chingchang Railway between Nankau Pass on the Southern end, and Kalgan, called Chang-chia-kao, is now accomplished, says the *P. & T. Times*.

This tunnel is 3,570 feet long, and its construction has taken the Chinese unceasingly for about a year and a half to complete.

The building has been carried out by Chinese contractors, who worked from the Southern as well as from the Northern end of the tunnel. In addition the work was also carried on through a shaft which was sunk several hundred feet from the highest point of the mountain pass, just where the inner section of the great Chinese Wall runs.

It is at the highest point of the Pass that the large tunnel is pierced and from it another 60 miles of road lead down towards Kalgan.

When this road, in about a year, is finished, it is expected that the bulk of the merchandise, which since time immemorial is carried over this Pass from China into Mongolia and Siberia, or vice versa, will be transported by rail. At present the stream of transport goes on camelback, on donkeys, mules, horses and carts, and it is a most interesting sight to watch the continuous lines of animals loaded with merchandise and raw products, passing along this historic route.

Credit for the building of the line is due to Director General Jeme, a graduate of Yale, and an A. M. I. C. E.

The main section of the tunnel works is in charge of Engineer Yente-ching, who was in the employ of the former American syndicate to build the Yue-han Railway. The Peking-Kalgan line will cover 130 miles. There is very little elevation from Fengtai to the Nankau Pass, but after entering the Pass the elevation rises 1,800 feet in the short distance of 10½ miles.

The rails are laid on narrow high embankments for the greater part of the whole road.

The recent rumor of a tunnel disaster at this section is entirely unfounded.

THE HART-PARR MOTOR

The introduction of the Hart-Parr motor, which operates by the use of petroleum, gasoline or alcohol, in the development of agriculture in the Philippines, promises to meet with exceptional success. Mr. C. E. Helvie, the sole agent of the manufacturers in the East, superintended a successful exposition of the capacity of the motor at Pasay, Manila, last month, in the presence of insular officials and leading hacenderos. The motor used weighed 9 tons with a nominal capacity of 22 h. p. and a brake force of 40 h. p. The trial was confined to plowing with two gangs of plows or twelve plows in all. This equipment turned furrows to a width of 10 feet and a depth of 8 inches and showed a capacity of plowing 25 acres in ten hours.

The labor required in all includes an unlicensed engineer and a helper as the motor is simplicity itself and specially built to eliminate the necessity of any degree of technical training for its successful operation.

The result of the trial was a pleasing surprise and the demand for the machine is daily increasing.

IRRIGATION PROBLEMS

The Philippine Government has appropriated ₱750,000 for the purpose of installing irrigation systems in the archipelago which, with ₱250,000 made available last year, gives ₱1,000,000 for this work which will be promptly prosecuted. This action was taken in view of the danger from drought which last yeai had a serious effect on the rice crop. This action of the Philippine Government has been the result of special study of the success with which the British have installed irrigation systems in the Far East and with the advantage that the Philippine Government will have the benefit of British experience. With rich soil, an agreeable climate and a reliable supply of water for irrigation, the farmer is in the position of one who may expect with the greatest degree of confidence that Providence will do the rest. The farmer who depends on the irregular rainfall is one who has failed to appreciate the old saw, "Providence helps those who help themselves." This has been the result of constant effort on the part of the Hon. W. Cameron Forbes, Secretary of Commerce and Police.

Experience has taught some bitter lessons, but it cannot be said that the government of India has not profited thereby. There has already been inaugurated a gigantic system that might be said to be the mere nucleus of the complete scheme proposed in that colony.

Irrigation in Australia has been discussed for years and there is prospect that in the successful exploitation of the idea, an era of the greatest development the world has ever known will be inaugurated. In this connection, *Capital*, the leading financial paper of India, under the caption "Colonial Irrigation," says:

"Where irrigation plays such a prominent part as is the case in India, it is of interest to learn what is being done in this direction in other portions of the Empire. It was thought, a few years ago, by pastoralists, and others in the Australian Colonies, that though artificial watering of the soil might be profitable in a country like India, where labour is cheap and abundant, it would be waste of time and money to attempt it in Australasia, with its sparse population and expensive labour. This notion has been totally dispelled by the experiences of the past few years, and irrigation on a considerable scale is taking place in all the Australian States by means of artesian wells, and water is found in large areas over many hundred thousand square miles in Queensland, New South Wales, South Australia and Western Australia. The supply comes both from the rainfall itself, and from the various rivers which soak through their channel beds into a soft absorbent rock which is tapped by boring to varying depths, even as great as close upon 3,000 feet. The results are in some cases truly marvellous, one Government bore in New South Wales, giving out over 800,000 gallons of excellent water per day. Curiously, Victoria is the only one of the Colonies where this artesian water appears to be in small supply, it being thought that there is a wall of impervious rock on the border of New South Wales, which diverts the underground current. From some of these bores the pressure is immense, and the water is thrown to a great height, whereas in others it only just overflows the bore hole, the difference, no doubt, of course, depending upon the relative elevations of the place of intake and that of outflow.

"Irrigation, therefore, may now be regarded as having passed the experimental stage and, whilst there is argument for the saving of the necessary plant required, and growing crops by the more natural means which, generally speaking, are fairly successful in every two out of three years, it is of much interest to compare the net result on non-irrigated land of similar character and under similar climatic conditions, on the experience of one of the pioneer irrigators.

"The yield per acre on the unirrigated land was as follows:—

Wheat 10½ bushels:	on the irrigated	20 to 45 bushels
Hay 1 ton 2 cwt.	" " "	2 " 4 tons
Barley 10 bushels	" " "	30 " 52 bushels
Potatoes 2 tons	" " "	9 tons

"On the Government experimental farms, as well as on private properties, all sorts of fruit, grain, lucerne, root crops, and products of every kind, have been grown with success. Hay yields enormously as above shown, sorghum grows to a height of 8 feet in 10 weeks, and fruit grows to perfection. In one district experience showed that 15,000 sheep can be fed upon 250 acres of irrigated land for three months.

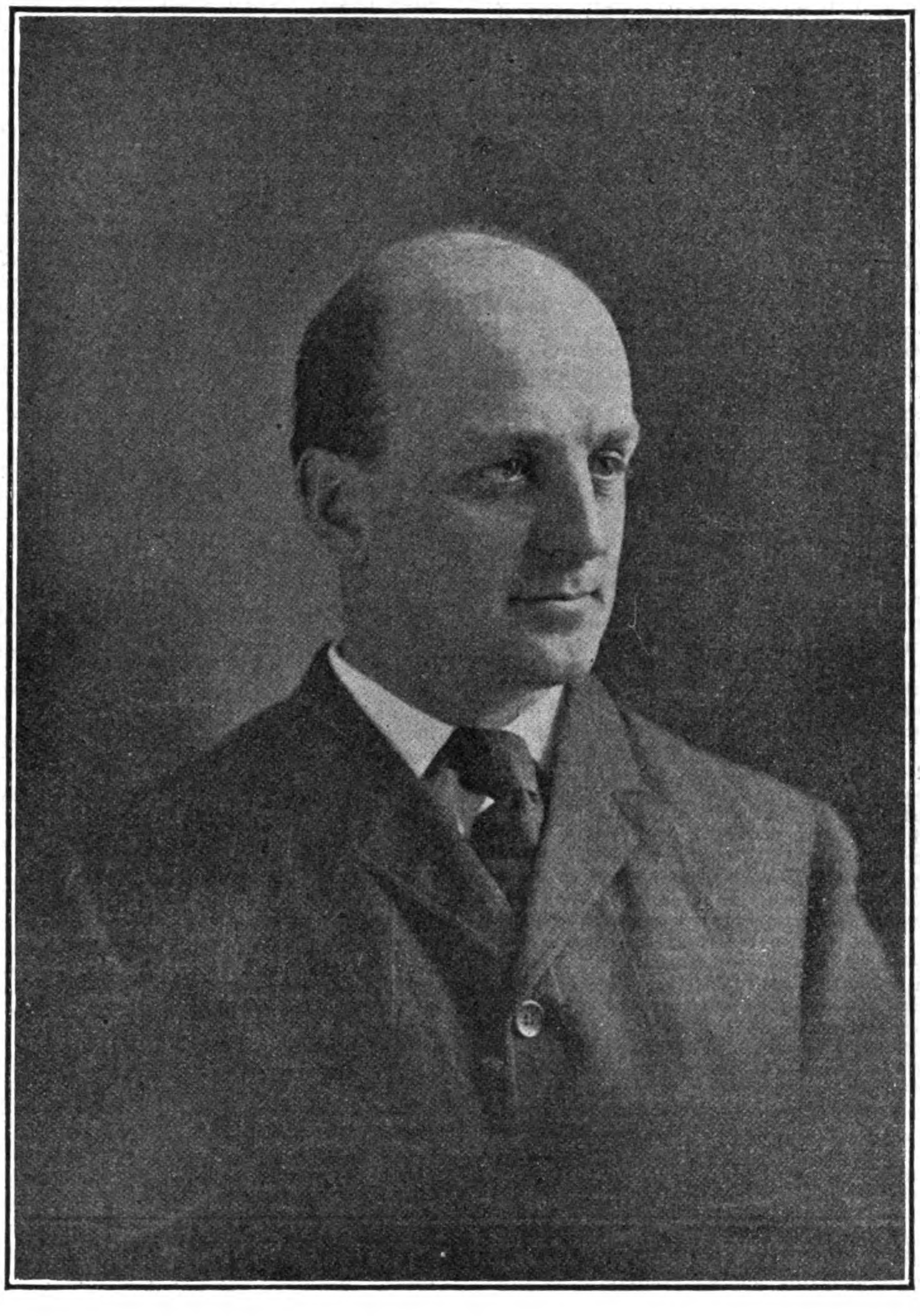
"The Government has also various schemes on hand for the conservation of water, one being a high masonry dam across the Murrumbidgee River, designed to hold a depth of 200 feet of water and having a capacity of 766,000 acre feet of water.

"Another scheme is a moveable diversion weir, on the same river, to turn the water from the river into a main canal; with various distributing channels to convey the water on to numerous small holdings. The irrigation rate proposed for land on this canal works out to the moderate annual rate of 10 shillings to 12 shillings per acre for a full supply of 24 to 30 acre inches.

"The furrow system is that most generally adopted, where practicable, being economical and causing less evaporation, as well as having the advantage of an equal distribution over and soaking of the soil, and being available for cultivation as soon as the furrows become dry. After cultivation, land which has been irrigated, retains the moisture, as the loose soil on the top prevents much of the evaporation, and therefore crops so watered and worked will require less frequent waterings than where cultivation is not carried out.

"It has often been discussed as to whether, if irrigation were to proceed on a very extensive scale in the Australian Colonies, there would be a sufficiency and constant supply of water, and as far as is at present known, it may be answered affirmatively, the supply apparently being inexhaustible.

"Up to now the results have been eminently satisfactory, and the tendency is for the irrigable portions of the various states of the Commonwealth to steadily attract population."



THE HONORABLE W. CAMERON FORBES, SECRETARY OF COMMERCE AND POLICE, PHILIPPINE ISLANDS, THE FATHER OF IRRIGATION IN THE PHILIPPINE ISLANDS, WHO SAILS FOR THE HOMELAND ON A VACATION THIS MONTH

* THE STRENGTH OF CULVERT PIPE

There is little published information regarding the stresses to which culvert pipes in railroad embankments are subjected by the conditions of bedding and earth pressure. The ordinary cast iron water pipe, generally used for this purpose, is designed merely to withstand the internal hydrostatic pressures encountered in service, since in most cases this gives pipes of the desired rigidity. The external stresses have heretofore been regarded as indeterminate, authorities agreeing that there seemed no satisfactory way of computing them. For that reason the tests which have been made at the University of Illinois on both cast iron and reinforced concrete culvert pipe are of special interest and value in throwing light on this subject.

The experiences of different roads with cast iron culvert pipe do not seem to be uniform, some claiming to have little or no trouble, while others have a great many breakages. We have heard of one road which made it a rule not to use cast iron pipe in banks under 10 ft. or over 25 ft. high. But the real conditions to be observed are careful bedding and tamping to assure as even a distribution as possible of the bearing pressures. This may be further helped by shoring up the bearing pressures. This may be further helped by shoring up the barrels of the sections to equalize the support, and some roads do this.

Proper trenching is presupposed. Engineers have reported pipes breaking without apparent adequate cause. With the ordinary rectangular-bottom trench it is harder to equalize the pressures than where the bottom is curved and the material is well tamped around and under the pipe. Tamping is very necessary, otherwise, the earth immediately under the bottom element is unduly compressed and concentrated loading results. There is a record of some 48-in. cast iron pipe 1¼ in. thick being flattened ¼ in. under an 8-ft. fill, and more than 7/10 in. under a 22-ft. fill. Pipe of these dimensions distorts slightly from its own weight, careful measurements of lengths lying on the ground, and therefore having one line of support, showing a difference between the vertical and horizontal diameters of over 1/10 in. With an increase of the thickness to 1½ in. this distortion was not noticeable.

The results of the University of Illinois' tests were presented in condensed form by Professor Talbot, of that university, in a paper presented at the April 15 meeting of the Western Society of Engineers. In addition to the main tests, the investigation included a lot of auxiliary tests to give data on the action of pipes in other methods of testing. In discussing the mechanics of pipes and rings subject to external pressure, formulas were developed for the bending moments under certain assumed conditions of loading. These are intended only to serve as a basis for calculations, since the assumed conditions do not represent accurately the conditions of bedding and loading found in practice. The nature and extent of the possible or probable variations from the assumed conditions were discussed, however, and the effects of such divergence considered. In the main tests a special testing apparatus was used. It included a box of stiff construction, the pipes being embedded in sand in this box and the load applied through a saddle resting on the sand cushion. Nine cast iron and five reinforced concrete culvert pipes were tested. Both light and medium weights in the cast iron pipes were used. Four were of 36 in. diameter, two being 1 in. and two 1¼ in. thick. Five were of 48 in. diameter, three being 1¼ in. and two 1½ in. thick. In the order given, the average breaking loads were, in pounds per lineal foot, 24,750 lbs., 37,250 lbs., 28,800 lbs. and 51,950 lbs.

The reinforced concrete culvert pipes were the designs of the Chicago, Burlington & Quincy Railroad, described in the *Railroad Gazette*, October 12, 1906, but improved in a number of respects since that time. All of the pipes were 3 in. thick, the difference being in the method of reinforcing. The load at first crack, in pounds per lineal foot, varied from 4,950 to 10,960 lbs. The maximum load varied from 23,800 to 31,500 lbs. The data does not indicate the method of reinforcing corresponding with these figures. It should be mentioned regarding these pipes that two of them were frankly experimental, and in one, for some reason unknown, the concrete proved poor. Only two of the five, therefore, were representative. We assume that it was these two that showed the highest loads.

One notable difference between the reinforced concrete and cast iron pipe is that while the latter collapse completely under a maximun dead load, the action of the reinforced concrete pipe is quite different. Final failure is through crushing of the concrete, and after passing the critical load there is a large margin of strength available in an emergency. Reinforced concrete pipe can be made as strong as cast iron pipe simple by increasing the thickness of the concrete, the gain being proportional to the square of the diameter. The object with this pipe, however, should be simply to make it strong enough to stand the service when carefully and properly laid and thus save as much as possible over the cast iron pipe. Another consideration is the possible saving in transportation costs, which are sometimes excessive on new work. We have heard of one case recently where 60 cents per ton mile was paid for testing cast iron culvert pipe for a new line which was being built through very rugged country. Reinforced concrete pipe can be made at or near the site, saving this considerable additional expense.

* *The Railroad Gazette.*

PHILIPPINE RAILWAY CONSTRUCTION.

The unusual May tyhoon, accompanied by heavy rain, interfered materially with the progress of construction on the island of Luzon but the fine weather following has made it possible to proceed and it is expected that before the rainy season, proper satisfactory results will be obtained.

On May 24th, the line connecting Paco with Cavite began operations as far as San Roque. This line which is operated by the Manila Railway Co. is about 30 kilometers in length. Traffic on the Camp One branch from San Fabian was suspended with the close of the season at Baguio.

The entire line connecting San Fernando de Pampanga with Florida Blanca via Guagua and Lubao has been operating since April 10. This branch is 24.5 kilometers in length.

Work on the Calamba-Santa Cruz line is being pushed. This branch when completed will tap the Manila-Batangas line.

The Philippine Railway Company's construction is well under way in Cebu where the entire line has been in operation for some time connecting Danao and Argao. With the exception of bridge work it might be said that the entire line is complete.

In Panay grading has been completed as far as the 30 mile post and the ballast and steel is down within half a mile of that point. With the completion of the steel bridge across the river Ulian the construction work will proceed with greater expediency, if the rainy season does not interfere with the work. The bridge material has been coming in regularly and there is prospect of little delay for want of material. The construction of shops, stations, buildings, etc., is progressing apace, and the character of the work, with a view to permanency, is of the very best. Concrete is the chief material used.

The rolling stock in the knockdown has been arriving and workmen are busy assembling it.

The preliminary survey of the line in Negros has been completed and the Philippine Railway Company has asked for the approval of the route connecting Saravia and Himamalan and of the extension of this line to Cabancalan on the River San Juan de Ilog, with the abandonment of the northern branch connecting Saravia and Escolante. It is believed the routes proposed will meet with the approval of the government.

CONVERSION OF COAL INTO GAS

"The proposals made from time to time to cheapen the cost of fuel by converting the coal into gas at the pit-mouth, as has been done by the Mond Company, or by its use for the generation of electricity at the colliery and the transmission of the energy to any required distance for heating and lighting, as has been suggested by Sir Oliver Lodge as a possible remedy for fogs, no doubt have many advantages, but we, says the *Times Engineering Supplement*, have still to learn whether these plans are commercially practicable. It is interesting to observe that a trial of the latter system of using the coal is now being carried out upon a large scale at a French colliery. The Société des Houillères dee Ronchamp is putting down a generating station of 30,000 h. p., to supply current for lighting and power purposes over a wide area in the industrial districts of Doubs and the Vosges and the country round Belfort. This installation will be on a sufficiently large scale to test the comparative cost of energy transmitted in the form of electric current, as contrasted with that conveyed in the form of coal, and, no doubt, the results of the operation will be studied with interest by all users of power, both here and on the Continent. There is already, in the Durham and Northumberland coalfields, a company operating on somewhat similar lines, which, with the command of coal at the colliery itself, is enabled to earn a handsome profit for its shareholders."

NEW GOLD SAVING APPARATUS

A new gold saving shake sluicing machine with a capacity of 16 tons a day and employing the labor of only two men has been invented by an Australian and successfully tested by treating the tailings in the Dee River which had been abandoned by the Mount Morgan Co., says Consul General Bray of Melbourne. It is claimed that sands containing but one-half pennyweight a ton can be worked to advantage. It is also said to be as successful in the treatment of tin ore of the lowest grade. The amount of water required averages about the same as the ordinary sluices and cradles. A company has been organized to manufacture the machine and introduce it in other countries.

SERENDAH BAHRU MINE

The formal opening of the plant of the Serendah Bahru took place the latter part of February when Mr. Nightingale, inspector of mines, by direction of Mr. Tully, the owner, turned on the water from the hydraulic monitor giving a stream of 75 pound pressure, says the *Malay Mail*.

The steel piping throughout the mine is about 11,000 feet in length and conveys the water to the five monitors from the reservoir on a hill adjoining the property. This piping consists of 14″, 10″, 8″ and 6″ service pipes. On the hill an intake dam measuring 5′×6.5′×4′ has been constructed and the piping through this receives a continuous supply from a river source.

YLANG YLANG CULTIVATION

Writing from Singapore, Consul-General Thornwell Haynes states that in the province of Bienhoa, Cochin-China, it is reported that the cultivation of the ylang ylang tree, which is so famous for its yield of perfumery essences, has been taken in hand on several estates with satisfactory results. The high price given for ylang ylang essence makes the cultivation of the tree highly remunerative. It is stated officially that two acres planted with 300 trees may give 6,500 pounds of flowers which at the least may yield 33 pounds of essence. At $18 per pound this would mean nearly $600.

FAR EASTERN COMPANY REPORTS

WATKINS, LIMITED—The result of the year ended December 31st, 1907, shows a profit of $13,282.32 of which there was alloted to meet interest on mortgage and loans $2,539.15; depreciation $3,972.54; reserve for doubtful debts, $1,726 96; building depreciation reserve $2,000, and loss on subsidiary coins and exchange $2,963.55, leaving a balance of $754.58 to carry forward to next account.

NATIONAL BANK OF CHINA—At the meeting of the shareholders at Hongkong, May 16th, the accounts showed that the balance of $71,293.09 brought forward from last year together with $150,000 from general reserve fund were required in addition to the working profit during the year to make full provision for bad and doubtful debts in 1907, and previous years, as foreshadowed in the chairman's speech at the annual general meeting held in 1906. This left $150,000 in the general reserve fund and a balance of $10,223.09 to be carried forward to next account.

NETHERLANDS-INDIA DISCOUNT BANK—At the 50th annual meeting of this institution held at Batavia on June 3rd, the sum of Florins 731,538.29 was carried forward after paying a dividend of 8% which amounted to Florins 480,000.

YANGTSZE INSURANCE ASSOCIATION, LIMITED—At the meeting held April 28 the payment was authorized of dividends to holders of the 8000 Old Shares in the Association of 25% viz:—$12 per share (=20%) out of the balance at credit of 1906 account and a special dividend of $3 per share (=5%) out of interest earned for 1907.

LEDBURY RUBBER CO., LIMITED.—The net profit of this company for the year ended February 29th was $2,941.87 which added to balance of $353.46 brought forward from last account was carried forward to next account.

THE BLACKWATER (KLANG) RUBBER CO.—The report of this company for the year showed a net profit for the year of Rs. 38,353.30 and with the Rs. 557.53 brought forward, made Rs. 38,910.83 available out of which a final dividend of 8%, making 15% for the year, was directed paid and the balance of Rs. 9,173.73 carried forward.

ANGLO-MALAY RUBBER CO., LIMITED.—This company recently declared a final dividend of 10% making 20% for the year and carried forward £3,350.

SANDYCROFT RUBBER CO., LIMITED.—At the annual meeting of this company held at Singapore, a dividend of 15% was authorized.

THE TIENTSIN BAUGESELLSCHAFT.—The net profit for the year amounted to Tls. 24,371.16 of which the following disposition was made: written off buildings, electric light plant, club building and furniture, Tls. 9,312.62; to the reserve fund, Tls. 750; 7% dividend on 1,610 shares for one year, Tls 11,270; 7% dividend on 190 shares for three-quarters of a year, Tls. 997.50; 7% dividend on 18 shares for three-quarters of year, Tls. 63 00; remuneration to directors, 200. 5% dividend on 1610 shares for one year, Tls. 805.00. 5% on 900 shares for one-quarter year, Tls. 71.25 and 5% on 18 shares for one-half year Tls. 4.50; balance carried forward, Tls. 897.

LLEWELLYN & CO. LIMITED.—At the annual meeting held May 15th, this company authorized the payment of a dividend of 10% or of $6 a share for the year.

THE STAR FERRY CO., LIMITED.—The amount to the credit of profit and loss for the year ended April 30th, after paying for repairs and placing $7,785 to the credit of Insurance Fund was, $24,898.52 which was disposed of as follows:

Directors' and auditor's fees $1,100.00, dividend of 10 per cent. $15,000.00, write off boats $87,000.00, and carry forward to new account $98.52.

PEAK TRAMWAYS CO., LIMITED.—At the meeting of this company held on May 16th, the directors' report was adopted and the following disposition made of the total balance to the credit of profit and loss of $42,785.70 which included $2,655 63 brought forward: Remuneration for directors, $2,500.; remuneration for general managers of 5% on the gross earnings, $4814.05; an 8% dividend absorbing $23 000.00; $5,000 placed in the Reserve Fund and a balance of $7,471.65 carried forward.

CEYLON RUBBER ESTATES, LIMITED.—This company has authorized the payment of 2.5% final dividend, making 5% for the year.

JEBONG (PERAK) RUBBER CO.—The report for the year submitted at the annual meeting held at Colombo in April showed a falling off in profit compared with the previous year's record and a final dividend of 4%, making 7% for the year was authorized.

HODEN OIL COMPANY.—The report for the half-year ended March 31st, shows net earnings amounting to 1,367,668 yen, which was disposed of by w iting off 242,668 and paying a dividend of 36% per annum.

HALL & HOLTZ, LIMITED.—The report for the year showed a profit of $15,002.65, which together with the amount forward from former account made $50,159.85 available and which was disposed of at the annual meeting held April 30th by the payment of a dividend of 10%, the balance being carried forward.

THE COLOMBO ELECTRIC TRAMWAY CO., LIMITED.—As a result of the year's workings, a dividend of 4% was paid, £5,111 placed in the reserve and £935 carried forward.

INDO-CHINA MANUFACTURING CO., LIMITED.—This company for the year ended December 31st, 1907, made a profit of Rs. 1,63,305 out of which an interim dividend of Rs. 50 and a final of Rs. 75 were paid.

INDIAN MANUFACTURING CO., LIMITED.—This company paid an interim dividend of Rs. 30 last October and a final dividend of Rs. 20 a share.

NORTH GERMAN LLOYD.—This company has declared a dividend of 6.5%.

NANKAI RAILWAY COMPANY.—This company has declared a dividend of 10% per annum for the term.

THE CHUGOKU RAILWAY CO.—A dividend of 4.3% per annum has been paid by this company for the half year.

THE HANSHIN ELECTRIC RAILWAY.—A dividend of 5% per annum has been authorized this company for the term.

MONOMO-ARIMA ELECTRIC RAILWAY CO—This company has declared a dividend of 5% per annum for last term.

UJIGAWA RAILWAY CO.—The shareholders of this organization have authorized a dividend of 5% per annum for the term just ended.

KYOTO ELECTRIC RAILWAY CO.—An 8% per annum dividend has been declared by this company for the last half year.

BISAI RAILWAY CO.—A five per centum per annum dividend has been declared by this organization for the term.

OSAKI DENKI BUNDO.—This company has authorized a dividend of 8% per annum for the term just ended.

NAGOYA SUGAR REFINING COMPANY.—The net profit from the working of this company amounted to 9,394 yen for the term and no dividend was declared.

HODEN OIL CO.—At the general meeting of this company a dividend of 6% was declared for the term just ended.

OSAKA JUNKA KISEN KAISHA.—At the general meeting held recently a dividend of 30% per annum was declared.

CALCUTTA TRAMWAYS COMPANY, LIMITED.—A final dividend was directed paid amounting to 2s. 6d. a share and making in all 6% for the year ending December 31st, 1907.

HONGKONG ELECTRIC CO., LIMITED.—The balance to the credit of profit and loss for the year ending February 29th, 1908, was $159.637.13 and the following disposition was made of the amount at the annual meeting held May 16th.

After deducting $3,000.00 for directors' fees a sum of $156,637.13 was dealt with as follows:—To pay a dividend of 10 per cent: —say $1.00 per share on 60,000 shares $60,000; to pay a bonus of 2 per cent., say 20 cents per share on 60,000 shares $12,000; to write off plant account for depreciation $58,308.60, to write off from land and building account $13,612.10; to pay a bonus to staff $3,395; to carry forward to next account $9,321.43=$156,637.13.

IMPERIAL CEYLON TEA CO.—This company declared a dividend of 5% for 1907 against 3% for the previous year.

KUANTAN TIN MINING CO., LIMITED.—With the balance brought forward from the previous year the balance to the credit of profit and loss at the end of the year was $42,569.83 out of which an interim dividend of 25% was paid, and at the annual meeting a final dividend of 10% was authorized, making 35% for the year.

ANGLO-MALAY RUBBER CO., LIMITED.—This company has declared an interim dividend, making 20% for the year 1907.

SHELFORD RUBBER ESTATE, LIMITED.—The profit for the year amounted to £377. No dividend was declared.

BEVERLAC (SELANGOR) RUBBER CO.—The net profit for the year was Rs. 50,737.56 and, with amount forward from former account, made Rs. 52,016 available and a dividend of 10% was authorized paid at the annual meeting absorbing Rs. 50,000, the balance being carried forward.

ALLIANCE TEA COMPANY, CEYLON.—This company paid a dividend of 8% and carried £2,500 to the reserve for 1907 against 7% for the previous year.

THE HIGHLAND TEA CO. (CEYLON).—This company paid a final dividend of 5%, making 7.5 for the year 1907, against 6% the previous year.

CHINA IMPORT & EXPORT LUMBER CO., LIMITED.—At the annual meeting of this company a dividend of 10% was declared for the year ended December 31st, 1907.

NARITA RAILWAY CO.—At the regular general meeting of the shareholders of this company a dividend was declared of 5.5 per cent per annum.

ASTOR HOTEL CO., LIMITED.—At the annual meeting of the shareholders of this company, a dividend of 5% was declared for the year.

HIGHLAND AND LOWLAND PARA RUBBER CO., LIMITED.—This company paid a final dividend of 7.5% making 12.5% for the year.

THE SHANTUNG (GERMAN) RAILWAY.—The announcement has been made from Berlin that this company has paid a dividend of 4%.

A. S. WATSON & CO., LIMITED.—The total balance to the credit of profit and loss, including the amount brought forward from previous year, amounted to $87,014.79 according to the report of this company for the year ended December 31st, and this amount was disposed of as follows:

General Managers' Commission of 5 per cent. on the net profits for the year $4,076.60; Remuneration of the Consulting Committee, $2,500.00; an Interim Dividend of 3 per cent. in November last absorbing $27,000; Dividend of 3 per cent. (making 6 per cent. for the year) which will absorb $27,000; to write off Building Improvements, Furniture, Fittings, Utensils of Trade, Aerated Water Plant, and Machinery, $20,000; to carry forward to 1908 Account, $6,438 19.

CONTRACTS AWARDED

The Hongkong Whampoa Dock Co. has secured the contract for the construction of two more vessels for the Canton Water Police Service to cost $64,000 each. The dimensions are 120 feet long and 18 feet wide. They are to have a speed of 14 knots.

Messrs. William H. Anderson & Co. of Manila secured the contract for supplying the Philippine Government with 36,000 barrels of cement. This firm handles the Green Island Cement and the price at which delivery is made is ₱4.75. The other bids were Messrs. Peabody & Co., Atlas cement, ₱5.00; Messrs. Findlay & Co., Alsen cement, ₱5.15 and ₱5.45; and Messrs. Macondray & Co., Pyramid Cement, ₱5.19.

Bids were opened by the Naval Department for the supply of 2,000,000 pounds of fresh beef and 60,000 pounds of fresh mutton at Manila, June 5th. The two bids were those of Messrs. Castle Bros.-Wolf & Sons who quoted .195 centavos a pound for beef and .1675 a pound for mutton; and the Philippines Cold Storage .1998 centavos a pound for beef and .1690 centavos a pound for mutton.

Bids for the construction of a coal scow of light draft, to be used at Batan Island, were opened last month by the Chief Quartermaster of the Division. Following are the bidders, with amount: Varadero de Manila ₱9,000; Cho Chung Lung ₱8,650, and Wong Tid ₱7,500. The estimates have been taken under advisement and award will be made later.

Bids submitted for the erection of six pumping stations for the new sewer system of the city of Manila were opened by the Municipal Board on June 5th. The bidders were: The Atlantic, Gulf & Pacific Co., Robert M. Loper, J. E. Ainsworth and Harry Thurber, the lowest tender being ₱145,914 and submitted by the Atlantic, Gulf & Pacific Co.

FAR EASTERN MINING OUTPUTS

TIN

April returns from the different mines are as follows:

Belat	Piculs	514
Bruseh	"	402
Gopeng	"	620
Kanaboi	"	186
Kinta	"	440
Kledang	"	275
Kuantan	"	255
Lahat	"	320
New Gopeng	"	247
Pusing Lama	"	420
Rambuntan	"	146
Redhills	"	330
Royal Johore	"	150
Sempan	"	100
Serendah	"	619
Sipiau	"	120
Tronoh	"	2,190
Société des Etains de Kinta	"	2,740
North Tronoh	"	271
Mendrus	"	171

GOLD OUTPUT

Raub Australian Gold Mining Co., April, 1,065 Oz.

Oriental Consolidated for March, Gross Receipts, $120,898 gold.

Philippine Gold Output.

Benguet Consolidated for May 202 Oz. and 30 Lbs cyanide at $30 a Lb.

Paracale Dredging Co. for May, 221 Oz.

PERSONAL

Mr. J. Howell May, of the Customs Service, has been promoted to the position of Outdoor Deputy Commissioner at Canton and also received the Order of Double Dragon of the Third Class.

Mr. J. W. Denny, the well-known mining engineer, is now connected with the native mines at Wuhu.

M. Klobukowski, the well-known French diplomat, will succeed M. Beau as governor-general of Indo-China.

Mr. H. E. Fulford, C.M.G., H.B.M's consul-general at Mukden, is in London.

Mr. A. E. Lewis, General Manager of the Sempan Tin Mines and the Malay and Siam Corporation, has severed his connection with these companies.

Mr. E. J. Valentine has been appointed inspector of mines, Negri Sembilan.

Sir William Taylor, the resident-general, left Kuala Lumpur for the homeland last month.

Mr. H. C. Belfield, British Resident of Selangor, will undertake the Resident-General's duties during his absence.

Sir Henry Spencer Berkeley, Knight, K. C., has been provisionally appointed an unofficial member of the Executive and Legislative Councils of Hongkong during the absence of Mr. Henry Keswick. Mr. Henry A. Ware Slade has also received a similar appointment to act during the absence of Mr. Edward Osborne.

Mr. T. G. H. Brayfield has been appointed second assistant marine surveyor of the port of Hongkong to succeed Mr. H. L. Fletcher, resigned.

Mr. T. Neave, Acting Superintendent Engineer of the Kowloon Docks, is enjoying a vacation to the Homeland. He will be absent for about six months.

Mr. A. H. Ough, architect of the firm of Messrs. Leigh & Orange, sailed from Hongkong last month for a visit to England via Siberia.

Mr. W. T. R. Preston, commercial agent for Canada in the Far East, sailed last month for Yokohama after a short visit to Hongkong.

Mr. G. Stothard, manager of the Malakoff Estate, province of Wellesley, and William Duncan, manager of the Nova Scotia and Rubana States, Perak, sailed last month for London.

Mr. F. Kilian, foreign manager of the Siam Commercial Bank, sailed for home early in May.

Mr. Wilbur T. Gracey, American consul at Tsingtau, is on a vacation in the United States.

Mr. Wilson, manager of the Kowloon Docks, returned from an extended trip to Europe, last month.

Dr. Tenney has been appointed Chinese secretary of the American legation at Peking to succeed Mr. E. T. Williams promoted consul-general at Tientsin.

Mr. Skinner Turner, British judge in Siam, has been transferred to Shanghai.

Dr. Wendschuh has been promoted from Manila to be German consul-general at Seoul, Korea.

Mr. A. E. Dencker, the well-known mining engineer, was recently appointed metallurgical engineer to the Oriental Consolidated Mining Co. of Korea.

Mr. C. G. Warnford Lock has assumed the management of the Sempan Mines, Limited. Mr. N. Dalrymple is the resident director.

Mr. A. A. Bristow, formerly manager of the Ipoh Marble Works, has accepted the position of chief engineer of the Lahat Mines, Limited.

Mr. Georges Bain of Kuala Lumpur has been chosen as European representative of the Eastern Smelting Co. and will leave for London at an early date.

Mr. M. Wilde, of the firm of Messrs. Stang, Wilde & Co. of Tientsin, is to take a six weeks' vacation which he will spend in Europe.

Towky Foo Choo Choon, the most prominent Chinese mine owner in the Straits Settlements and the Federated Malay States and who recently secured a mining concession from the Chinese government in the island of Hainan, has been elevated to the mandarinate of the third rank by the Chinese Emperor, and Mr. Go Choo Chye, another prominent Chinaman, has been elevated to the mandarinate of the fourth rank.

Dr. Wooley, formerly of the bureau of science at Manila, and until recently director of the Royal Laboratory of Siam, has been promoted to Director of the Royal Department of Public Health for Siam. Dr. Ralf T. Edwards, also of Manila, takes charge of the laboratory.

OBITUARY

The report has been received from Davao of the murder by two treacherous Manobos of Henry M. Ickis, mining engineer and topographer of the Division of Mines, Philippine Bureau of Science, on April 1st, while Mr. Ickis was making a reconnoissance through Northern Mindanao. The unfortunate engineer was a native of Creston, Iowa, and a graduate of the Colorado School of Mines, class 1902, and was in his 28th year at the time of the tragedy. Upon graduation, Mr. Ickis accepted a position as mining engineer in Sonora, Mexico, and remained there until 1903, when he accepted a position with the Philippine Division of Mines. He was very well and favorably known among the miners and prospectors of the Philippines by whom the sincerest regret is expressed at his untimely passing. He was the author of several short papers on the geology and mineral resources of the Philippines.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, AIRSHIPS, ETC.

WIRELESS IN MINDANAO.—A field wireless equipment has been landed at Malabang for use of the troops there.

YOKOHAMA TELEPHONE SYSTEM.—The installation last month of 400 new phones brings the number of subscribers up to 2,227.

OSAKA MUNICIPAL TRAMS.—The system of electric trams has been completed and the rates charged make it cost 10 sen from one end of the city to the other extremity or 2 sen a ward.

WUHU ELECTRIC LIGHTING.—A company has been formed for the purpose of installing an electric plant at Wuhu and permission has been granted to the company to proceed with the work.

TOKYO LONG DISTANCE TELEPHONE.—This service connecting Tokyo and Yokohama with Sendai, Yamagata and Fukushima, has been in operation since the last of March and is giving general satisfaction.

JAPANESE AIRSHIP.—Yamada Isaburo, the airship inventor, has perfected a machine which he claims is capable of resisting a wind force of 15 meters a second. Trial trips were successfully made recently at Tokio.

•TIENTSIN CITY TRAMWAYS.—The extension of this system to include the French concession is now under way. The line will begin at the Southern end of the Japanese concession and proceed along the Rue l'Amirauté to the French Bund.

NAGOYA HYDRO-ELECTRIC PLANT.—The contract for the installation of this plant has been secured by the General Electric Company. When completed power will be generated at 6,600 volts by four 3-phase, 2,500-kw. 60 cycle, 360 revolution, water-wheel driven motors.

ELECTRIC INSTALLATION IN DUTCH OIL FIELDS.—The plant of the Royal Dutch Petroleum Co. on its oil fields in East Sumatra is being equipped with an up-to-date electric generating plant. The substitution of electric power, it is estimated, will reduce the cost of operation by ten per cent.

CHINESE TELEGRAPHS.—The ministry of posts and communications have authorized the purchase of shares in the Chinese Telegraph company at the rate of $110.00 for every $100 share. The shares will be redeemed at the offices of the Chinese National Bank at Peking, Tientsin, Hankow, Shanghai or Canton.

WIRELESS IN CHINA.—The recommendation of Sir John Jordan, that the Imperial government of China establish wireless stations at convenient points along the entire sea coast of the empire is being favorably considered at Peking and not a few stations have been authorized and established in Northern and Southern China.

KOHSICHANG CABLE LAID.—The latest reports from Bangkok, indicate that the cable connecting Kohsichang with the mainland has been completed by the Eastern Extension Telegraph Co. for the minister of public works of Siam. This puts the Siamese central government in direct touch with the police power of the island.

KOBE-OSAKA ELECTRIC CO.—The three million yen loan of this company has been placed with the firm of Messrs. Samuel Samuel & Co., the bonds carrying 6% redeemable in six years. The firm advancing the loan agrees to provide for the investment of 2,700,000 yen in a plant. The work of construction will begin as soon as the plans have been submitted and approved.

PORT ARTHUR-CHEFOO CABLE.—The Japanese government has decided to repair the cable which was cut during the war by the Russian government. It is claimed to be a legitimate prize of war. It was laid by the Great Northern Telegraph Company in 1901 under instruction of the Russian government and no attempt has been made by the company to repair it since the war.

TOKIO ELECTRIC POWER AND RAILWAY AGREEMENT.—The railway has agreed to purchase from the power company commencing July 1st, 1910, a maximum of 10,000 kil. per hour at 1.6 sen per kil. per hour and for the year following a maximum amount of 15,000 kil. an hour at the same price to be continued for ten years. By this agreement the railway will save at least 30% on the cost of power.

AUCKLAND ELECTRICAL INSTALLATIONS.—The municipality has authorized the installation of an electric lighting plant to cost $125,000 and a company has been formed with a capital of $500,000 for the installation of a ferry service across the bay and further connection with Auckland by a tramway with Lake Takapuna, a distance of 10 miles. The material is being supplied from the United Kingdom.

JAPANESE WIRELESS SERVICE TARIFF.—The Tokyo government has authorized a charge of 25 sen for five European words and five sen each for additional words for messages sent from the stations on shore to steamers out to sea. The maximum distance between station and ship has been fixed at 120 miles. Stations have been established at Chosi, Shiwomisaka, Osezaki and on Tsunojima. Every telegraph office in the empire is authorized to take messages for these stations for transmission to steamers at an additional charge of 20 sen.

RAILWAYS AND RAILWAY SUPPLIES

CHEKIANG RAILWAY.—The section connecting Hangchow with Linping was opened to the public May 14th.

CHENGCHOW-HONANFU EXTENSION.—The progress on the construction of this extension of the Kaifeng line is progressing slowly.

KEELUNG-TAKAO RAILWAY.—This new line which was recently opened to traffic cost 25,000,000 yen and took about 14 years to complete.

BRANCH OF PEKING-HANKOW TO SHANGHAI.—It was decided at a meeting of the directorate on May 19th to construct a branch line to Shanghai.

PEKING-KALGAN EXTENSIONS.—Extensions from Kalgan to Kulun, to Jehol, and to Suiyden are proposed and will probably be constructed at an early date.

CHENGTING-TAICHOW BRANCH.—The Belgian Syndicate began the construction of this branch which is to be a feeder of the Peking-Hankow Railway, early in May.

RAILWAY TO TURKESTAN.—The military governor of Ili has asked permission of Peking to draw on the gold deposits of the province for the construction of a line from Ili to Chinese Turkestan.

SHIMBASHI-KOBE EXPRESS.—With the completion of the doubling of the line between Toyohashi and Kamagori and Okazaki and Anjo, it is the purpose to reduce the time between Kobe and Shimbashi.

TIENTSIN-PUKOW RAILWAY.—The proposed route of this line will very probably pass through Suchow, Linpi, Fengyang, Tingyuan and Chochow and thence to Kiang-Pu-Hsien to come out at Pukow.

AUSTRALIAN RAILWAYS.—During the fiscal year 1907 the Australian lines which cost over £137,000,000 yielded 4.35% on the investment which defrays all interest charges and leaves a surplus of £992,947.

JOHORE AND F. M. S. RAILWAY JUNCTION.—Gemas has been selected as the junction of the Johore railway and the Federated Malay States Railways, and the railway shops, etc., are now under construction at that point.

PENANG HILL RAILWAY.—The legislative council of the Straits has decided to purchase Strawberry Hill for the purpose of altering the sharp curves on this line which interfere with the successful operation of the road.

TOKIO RAILWAY CENTURY.—The director of this company proposes celebrating the completion of 100 miles of track under its control in the near future. With the completion of two small branches the mileage will reach 105 miles.

YOKOHAMA-TOKYO DOUBLE LINE.—The railway bureau proposes the construction of a double line connecting these two points for the purpose of being prepared to handle the increased traffic incident to the exposition of 1912.

JAPANESE REFRIGERATING CARS.—Twenty refrigerating cars for the railway works at Omiya at a cost of yen 3,000 a car. Thirty additional cars are now under construction and will be placed on the Tokkaido line. These cars carry two tons each.

LABOR FOR ANHUI RAILWAY CONSTRUCTION.—The indisposition of the natives of Anhui to work on the railway there has necessitated the employment of several thousand laborers who worked previously on the Shanghai-Nanking Railway construction.

FRENCH RAILWAY ENTERPRISE.—The railway from Tonkin is now completed half the distance to Mengtze and is expected to arrive at that point in October. The earthworks and masonry have been completed 180 miles beyond this point and the station at Yunnan is ready for occupancy.

TSITSIHAR-ANANCHI RAILWAY.—The contract for the construction of this line in Northern Manchuria covering a distance of 20 miles has been let by the Chinese government to Messrs. Telge & Schroeder of Tientsin. The materials will be supplied by this firm and construction will begin in July.

WESTERN AUSTRALIA EXTENSIONS.—Work has commenced on the Wannerook extension and tenders having been invited for the construction of the Narrogin-Wickepin Line. The extension of the Preston Railway to Boyup, according to the *Australian Hardware Journal*, was delayed owing to the scarcity of water.

AMOY RAILWAY.—According to the correspondent of the *China Mail*, the station at the Amoy end is a fine, substantial building and shops are being built for the German and American locomotives. The work of construction is progressing slowly. A consignment of 20,000 sleepers have arrived but the white ants are causing trouble with this material.

GAN-ETSU RAILWAY.—The construction of the extension of this line between Kitakaka and Niitsu through the mountainous district and which, when completed will be 50 miles in length, is in progress from both termini. It is expected that it will take over four years to complete this branch owing to the difficult character of the country and the engineering problems involved.

MANCHURIAN BROAD GAUGE.—The South Manchuria Railway Company has met with remarkable success in the opening of the broad gauge and last month the line was opened from Tairen to Mukden. The section between Changchun and Kunchuling was opened on May 21st; to Teiling May 22, and to Mulden May 25. First class accommodation including sleepers and dining cars will be available as soon as the stock arrives from America.

THE AMUR RAILWAY.—The construction of this important line while authorized by the Duma will probably be delayed indefinitely. The route also has not yet been decided upon although a number of schemes have been submitted. It is understood that the line will run through Russian territory and will probably start from Karymskaia, on the Trans-Siberian Railway, and finish at Khabarovsk, it will be about 1,320 miles long, and cost over £21,000,000. In these circumstances the Trans-Siberian Railway will be duplicated from Omsk to Karymskaia, at a probable cost of £13,160,000, which, together with the cost of construction of the Tiumen-Omsk and Amur Railways, amounts to a grand total of £37,528,420.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

IPOH MARBLE QUARRY WORKS.—These works have met with the greatest degree of success and a large order of new and modern machinery is being installed.

SAIGON WATERWORKS SYSTEM.—Plans and specifications have been completed for the construction, equipment, and installation of an extensive waterworks system at Saigon.

CEBU WATERWORKS.—The Philippines government has authorized the municipality of Cebu to issue bonds to the value of ₱200,000 for the purpose of providing the city with an up-to-date water system.

AMERICAN CONSULAR BUILDINGS.—Congress has authorized the expenditure of $1,373,643 for the purchase of sites and the erection of consular buildings thereon, at Shanghai, Hongkong, Yokohama, Chemulpo. Nagasaki, etc.

NEW HAIHO RIVER BRIDGE.—The expenditure of Tls. 150,000 has been authorized for the construction of a bridge over the Haiho river at Chia-Chia Ta-chiao. The bridge will be of iron and replace the wooden structure at that point.

YOKOHAMA HARBOR WORKS.—The constructing engineer in charge of these works has submitted plans for the construction of sheds and railways in connection with the new docks, together with some amendments to the original draft.

PORT OF TUNGCHOW.—The work of improving the foreshore and reclaiming the necessary area for the establishment of a handsome bund has been under way at this point for some time, preparatory to the opening of the port to foreign trade.

SUNGEI BESI WATERWORKS.—At a recent meeting of the Sanitary Board of Kuala Lumpur, it was decided that it would cost more than the Resident would consider to provide the town with a water system and the scheme was abandoned. The sum named by the Resident was $15,000.

PEKING WATERWORKS.—A Chinese company organized with a capital of Tls. 1,000,000 and known as the Peking Waterworks Co. has been granted a concession by the authorities to install a complete water system for the Chinese capital. Taotai Chow Hsuth-hsi is the chief promotor.

WATER TOWER AT TIENTSIN.—An additional twenty feet is being added to the height of the water tower which will give an additional pressure to the city hydrants there. The materials used are fire bricks supplied by the Chinese Engineering and Mining Co. and cement by the Green Island Cement Co.

HAINAN NAVAL BASE.—Peking has authorized the taotai of Hainan, through the Viceroy, to proceed to Yulin Bay and make the preliminary survey with a view to establishing a naval station to be used as a base for the South China Squadron and to arrange for the construction of fortresses and railways at that point.

PENANG RECLAMATION.—The dredging operations in the harbor have been highly satisfactory and the area in front of Swettenham Pier, Church Street Ghaut Wharf and the South Channel has been dredged at an average cost of 6.43 cents per ton. The dredge Crab and the tug Puffin were purchased by the department for this work.

YOKOHAMA WATERWORKS.—The chief engineer of the Yokohama Waterworks has drafted a scheme for the extension of the system that would entail the expenditure of yen 7,000,000. He proposes to begin the work in 1910 and finish it in five years and to redeem the loan necessary to meet the expenditure he recommends the raising of the water rates by 20%.

REINFORCED CONCRETE WHARF AT ADELAIDE.—The Colonial Sugar Refinery Co. of Adelaide has completed plans for the construction of a reinforced concrete wharf. The piles will be made on the spot. The *Australian Hardware* states that this is the first of the kind proposed in South Australia and more construction of the character same will follow if successful.

MACAO PUBLIC IMPROVEMENTS.—A decree issued from Lisbon authorizes the expropriation of the lands in the Chinese Bazar section of the city for the purpose of extending the work of public improvement of the city. The program arranged by the governor of the colony has not met with the loyal support from Lisbon and little progress has been made in public works.

MALDIVE ISLANDS IMPROVEMENT.—The Sultan of these islands has secured the services of a dredge and is busy deepening the harbor at Male. According to the rate at which the work is progressing, the entire harbor will be dredged to a depth at the minimum of 12 feet in two years. In addition to the harbor work, the Sultan is constructing a road around Male which will be 60 feet wide and built of gravel and choral.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

CHINESE-MARINE SERVICE.—Two steamers have been added to the service between Antung and Chefoo, Yingkow and Tientsin by the C. M. S. N. Co. These vessels are of 1,200 tons each.

MANCHURIAN NAVIGATION.—The Peking government has directed the Chinese authorities in Manchuria to regulate and otherwise protect and encourage traffic on the three rivers of prominence in that region.

SIBERIAN COAST FISHERIES.—The Douma is considering a bill providing for the protection of the fisheries off Kamchatka and in the Sea of Okhotsk. Patrol boats and a staff for running down poachers are provided for in the bill, and will be under the supervision of the Amur Financial office.

HIRANO MARU LAUNCHED.—This vessel being constructed by the Mitsu Bishi Dockyards was launched on April 21st and is a sister ship of the *Kumo Maru* recently launched from the same yards for the Nippon Yusen Kaisha. Her dimensions follow:

Length, 482 ft. 9 inches; Breadth, 56 ft.; Depth, 34 ft. 6 inches; Displacement, 15,750 tons; Gross tonnage, 8,770 tons; Speed 16 knots; Horse power 7,300.

TRANS-PACIFIC RATE CUTTING.—By arrangement with the Canadian Pacific the Chargeurs Réunis has organized a service whereby Europe can be made from Yokohama in 26 days. The service began last month and provides three steamers on a thirteen day schedule from Yokohama to Vancouver. Other steamers will take in Seattle, San Francisco and South American ports back to Europe. The passenger rate across the Pacific has been reduced to $155.00 and will be further reduced to meet competition. Two freight steamers have also been put on the Pacific run connecting Japanese and Pacific ports.

MISHIMA MARU LAUNCHED.—The largest vessel turned out by the Kawasaki Dockyard was launched on April 18th. It is being constructed for the Nippon Yusen Kaisha and is a steel vessel, Lloyds 100 A 1, built in conformity with the Imperial Japanese Shipbuilding Encouragement Law. She is 465 feet long, 56 feet wide and 34½ feet deep, gross tonnage 15,800, and, register tonnage 8,600. She is to be fitted with twin screw triple expansion, surface-condensing engines of 7,300 horse-power, and her speed is designed at 16 knots. It is expected that the vessel will be ready for her maiden voyage in the autumn.

MINES, MINERALS AND THE METAL TRADE

MINERAL EXPORT CO.—A company has been formed in Tonkin with a capital of $270,000 for the purpose of exporting minerals from the province of Tuyenquang.

NEW ZEALAND GOLD EXPORT.—The export of gold bullion from New Zealand for 1907 was valued at $9,867-118 a falling off of 55,633 oz. compared with the previous year.

BORNEO EXPLORATION.—The British Borneo Exploration Co. has increased the reward for the discovery of valuable mineral deposits in North Borneo from $5,000 to $10,000.

PING HSUNG MINES.—The output of these mines continue at about 1,000 tons daily. The recent explosion did little damage and in no way affected the capacity of the mining plant.

THE PUN YU COAL CONCESSION.—The Sin Hau Kuk has taken over the interest of the French mining company that recently abandoned its claim on account of losses sustained in operating the works.

FENGHUANGSHAN IRON MINES.—It is understood that the Peking Syndicate has secured a concession to develop these iron deposits and will finance the enterprise with the funds secured for its Shansi concessions.

OIL COMPANY'S PURCHASE.—The Namboku Kerosene Oil Co. has made arrangements to purchase the property of the Asand Oil Co. for Yen 1,000,000, and will increase its capital to Yen 4,000,000 for the purpose of handling the deal.

BURMA OIL COMPANY'S PIPE LINE.—The transportation of oil from the Yenanyaung oil fields to the pumping station at Pyinbinhla has been very successful. Over 1,500 tons were delivered at one time on the tank barges and towed to Rangoon successfully.

FORMOSAN OIL DEPOSITS.—Several applications for licences for permission to development of oil deposits in the provinces of Tainan, Kagi, Yensuiko, Banshoryo and Byoritsu are being entertained by the Formosan government, says the *South China Morning Post*.

MINING MAGNATE BANKRUPT.—The *Japan Mail* announces the bankruptcy of Yamagata Yuzaburo, the mining magnate of Hokkaida, and that the valuable sulphur mine at Hokkaido and the copper deposits in Iwate prefecture will become the property of Messrs. Samuel, Samuel & Co.

MINING IN SHANSI.—The Chinese Mining Co., of Taiyuan has secured control of the properties of the Peking Syndicate in that section recently relinquished and has secured subscriptions for 5,000,000 Tls. of stock, the funds to be used in developing the coal and iron deposits at Pingtingchou. It is the purpose of this company to establish an iron foundry in connection with these mines at an outlay of Tls. 1,000,000, most of the machinery having already been selected in Europe.

SOUTH CHINA COAL.—The Wuchow correspondent of the *South China Morning Post* writes that 30 tons of good coal arrived from the Fu River at that point and the belief is expressed that there are valuable deposits there awaiting modern machinery for development. The Canton correspondent of the *China Mail* announces that the coal mines at Shaochow which are being worked by the local government are progressing very favorably and, with better transportation facilities, the future would be assured.

SOUTH BURMA TIN.—The Indian government is making a comprehensive survey of the deposits of tin in this section. According to the *Bangkok Times*, during the past two years, the output of tin ore from the mines in the Mergui and Tavoy districts having advanced from 1,495 cwts., valued at £9,783, in the fiscal year 1905-06, to 1,919 cwts., valued at £13,574, in 1906-7. A few fresh prospecting licenses for tin were issued during the calendar year 1906 for the Mergui district, which is the centre of the industry at present.

FINANCIAL AND MISCELLANEOUS

JAVA SUGAR CROP.—The sugar crop for the year 1907 amounted to 19,444,288 pikuls.

CHINESE CENSUS.—It is announced from Peking that the minister of the interior will take a census of the entire empire at an early date.

TO COLONIZE SIBERIA.—According to the plans of the Russian government, 3,500,000 immigrants will be dispatched to this region during the next three years.

DUTIES COLLECTED AT CHIEYUKWAN.—The viceroy of Shensi and Hansu reports that Tls. 70,000,000 were collected in duties at that point chiefly on Russian goods imported.

CHINESE BANK NOTES.—It has been decided by the Board of Revenue at Peking that all officials, employes and soldiers of the Empire shall be paid in Chinese National Bank notes.

FIRE AT SHANGHAI.—The report has been received that the premises of the Shanghai Oil Mills and the China Import Lumber Co.'s Mills at Tangtsepoo were destroyed by fire on May 22nd.

HOKKAIDA SAVINGS BANK FAILURE.—With the suspension of this institution and its branches, it is estimated that in all the petty bank suspensions in Japan over 20,000,000 yen were involved.

JAPANESE CHAMBER AT TIENTSIN.—Official permission has been obtained from the Chinese authorities for the establishing of a chamber of commerce, comprised of Chinese merchants at that point.

SANDAKAN CHINESE CHAMBER.—The leading Chinese merchants in British North Borneo have organised a chamber of commerce for the purpose of advancing the interests of the Chinese colony there.

EAST SUMATRA TOBACCO.—The Bah-Boelian Tobacco Co. has been formed with a capital of 1,500,000 florins for the purpose of working certain concessions in Sumatra and establishing a general commission business.

JAPANESE MUNICIPAL LOANS.—The government has sanctioned the Osaka, Kyoto and Nagoya loan issues of eleven million, ten million and eight million yen respectively. They will be offered in small instalments.

CHINESE LEGATION AT BANGKOK.—The expenditure of half a million taels has been authorised by Peking for the construction of a handsome legation building at Bangkok and consular buildings at other points in Siam.

JUNK BAY FLOUR MILLS.—Chinese capitalists are reported interested in the purchase of the properties of the Hongkong Milling Co. with a view to handling the North China and Korean wheat for the Chinese market.

CHINESE SPINNING AND WEAVING FACTORIES.—The machinery in the hands of the Tartar-General Ili has been ordered to Peking and under the direction of the government a spinning and weaving factory will be established there.

SELANGOR FIRE FIGHTING APPARATUS.—A petrol motor hose tender with a speed of 26 miles an hour is now a part of the equipment of the fire department there. This motor is an adjunct to the fire engine motor recently secured.

FIRE INSURANCE COMPANY OF TIENTSIN.—The Peiyang Fire and Marine Insurance Co. is the name of a new organization with a capital of taels 1,000,000 promoted by the Chinese merchants of Peking and Tientsin. The head office is at Tientsin.

AMERICAN MANUFACTURERS TO INVADE ORIENT.—The Illinois Manufacturers' Association has completed arrangements to send 200 representatives to Eastern Asia to investigate conditions and inquire into the best method of developing American trade.

NEW SUMATRA RUBBER CO.—The Sialang, Limited, is the name of a company organized to develop a tract of 1,645 acres in Serdang, Sumatra and the *Malay Mail* remarks that this is evidence of the tendency on the part of capital to seek fresh fields and pastures new.

INTERNATIONAL BANK'S KOBE HOME.—The new bank building was occupied by the International Banking Corporation on April 21st. The building is an imposing structure situated at 30 Akashimachi, Kobe, and is provided with the most modern equipment in vaults, etc.

JAPANESE TEA EXPORT.—The export for the year just ended amounted to 10,293,000 kin, a decrease of about half a million kin compared with the previous year but the value received showed an increase of Yen 358,228 on the entire export owing to the advance in price.

DECLINE IN JAPANESE BANK DEPOSITS.—According to the Japanese papers, the deposits in 400 of the principal banks in Japan have fallen off about 300,000,000 yen and that the deposits in over two thousand banks throughout the country standing at about 1,658,000,000 yen at the end of January last, suffered a proportionate decline.

SIBUGUEY FOREST TRACT.—The concession obtained by Messrs. Williamson & Redding, lumbermen, on the eastern coast of the Zamboanga peninsula, Mindanao, contains about 180 square kilometers. Of this area, says the *Mindanao Herald*, 55% is cogon-grass land and 15% salt water swamp, leaving 30% for commercial timber.

BRITISH CORPORATION ORDINANCE.—A notice appears in the Hongkong *Gazette* informing managers, secretaries and other officers of companies whose duty it is to furnish annual returns of shareholders under the Companies' Ordinance 1865 that in future there should be added to the names of Chinese shareholders the Chinese characters for such names.

COMPANIES STRUCK OFF.—The *Hongkong Gazette* gives the following list of companies struck off the register: The Canton and Hongkong Tug, Lighter and Ferry Company, Limited; the Tak On Insurance Exchange and Loan Company, Limited; the Oriental construction Company, Limited; the Woosung Forts Launch Company, Limited; and the Chindah Steam Navigation Company, Limited.

INVENTION OF PAPER TILES.—Manjiro Suzuki, a native of Shizuska, is reported to have invented a new type of tile made of paper board. Some time ago an idea caught him to make tiles by use of wasted pasteboard. After many years' study he succeeded in making an ideal type proof against rain and fire. His product is by far lighter than the common earthen tile and saves the labor in roofing. Moreover its price is cheaper by 30 to 50 per cent than the ordinary clay made ones. The inventor has applied for a patent.

JAPANESE SHIPPING SUBSIDIES

Referring to the extent of the Government protection given to the shipping business in Japan at the present time, the Tokyo *Nichi-Nichi* observes that the policy of protection or encouragement for shipping pursued by the various countries in the world may be divided into six sections—mail subsidy, subsidy for naval service, tonnage, shipbuilding, navigation encouragement, and military transport. The method now adopted by Japan is almost identical with the policy followed by France and Italy, allowing subsidies for the transport of mails, extension of steam services, and shipbuilding and navigation encouragement. The total estimate of the shipbuilding subsidies to be granted in Japan for the present fiscal year, as included in the Budget, amounts to Y13,190,695 (including Y800,000 to be granted by the Formosa Government). Of the subsidies for steam service extension and steam navigation and shipbuilding encouragement, the Nippon Yusen Kaisha takes about Y7,000,000 (including a subsidy to the Formosan line, and the services under contract with the Hokkaido Government), the Toyo Kisen Kaisha about Y1,760,000, and the Osak Shosen Kaisha about Y700,000 (including the Formosan line and the Japan Sea service). Details of the building subsidies, which are estimated at Y13,190,695 in all for the present fiscal year, are as follows, the steam navigation details being given in round figures:—

I.—STEAM SERVICE EXTENSION SUBSIDIES (Y7,686,300).

1.—Nippon Yusen Kaisha	Y4,283,707
2.—Toyo Kisen Kaisha	1,013,880
3.—Japan-China S. S. Co.	800,000
Osaka Shosen Kaisha	491,000
4.—Osaka Shosen Kaisha, Awa Kyodo S. S. Co., and Mr. Marada Jujiro for calling at certain ports	50,000
5.—Nippon Yusen Kaisha, and eight others for services under contracts with local governments	247,713
6.—Nippon Yusen Kaisha and Osaka Shosen Kaisha for Formosan services	800,000

II.—STEAM NAVIGATION ENCOURAGEMENT SUBSIDY (Y3,483,955).

1.—Nippon Yusen Kaisha.........	Y2,200,000
2.—Toyo Kisen Kaisha.............	750,000
3.—Mitsui Bussan................	230,000
4.—Osaka Shosen Kaisha..........	200,000
5.—Mitsui Bushi.......................	100,000

III.—SHIPBUILDING ENCOURAGEMENT (Y1,995,440).

The receivers of this subsidy are the Mitsu Bishi Yard at Nagasaki, the Kawasaki Yard at Kobe, and the Osaka Iron Works, but the estimate for this purpose every year fails short of the amount required.

IV.—GRANT FOR TRAINING SEAMEN (Y25,000).

1.—Grant to the Seamen's Relief Society................................	Y 5,000
2.—Grant to the Imperial Sea Distress Assistance Society.........	20,000

In this connection it may be added that according to the Japanese Press, during last year one battleship, two armoured cruisers, and one second class cruiser were launched at the Imperial Naval Yards, and one dispatch-boat each at the Mitsu Bishi and Kawasaki Yards. The Mitsu Bishi Yard has in hand orders for the construction of vessels representing 80,000 tons in all, including a sister-ship of the "Tenyo" and "Chiyo," and the Kawasaki Yard orders for vessels representing a total of 35,000 tons. The number of vessels built in Japan during last year is given as follows:—

	No. of Vessels.	Tonnage
Imperial Naval Yards......	4	53 100
Mitsu Bishi Yard............	6	37,698
Kawasaki Yard...............	13	17,417
Osaka Iron Works..........	17	6,729
Ishikawajima Yard..........	6	1,330
Uraga Yard....................	2	89
Others............................	100	11,355

—*Japan Chronicle.*

CANTON-HANKOW RAILWAY STATEMENT

The first number of the official report of the directors of this company issued recently contains the information that the receipts of the company from all sources for the year 1907 amounted to taels 388,678,495 which added to the amount brought forward from 1906 made a total of taels 5,691,974.43. The disbursements for the year amounted to taels 2,030,894,385. Tenders for the earthwork on section six were advertised for and the contract awarded at taels 224,400.

Tenders for the supply of sleepers, and other materials have been submitted by Messrs. Arnhold, Karberg and Company, Messrs. Carlowitz and Company, Messrs. Jebsen and Company, Mitsui Bussan Kaisha, Messrs. Dodwell and Company and Messrs. Siemssen and Company.

PHILIPPINE MINING NOTES

Typhoon weather obstructed the work of the Bua Mining Company of Baguio, Benguet, during the month of May. The flume became obstructed and the tramway damaged somewhat by the flood. Repairs are however under way and there will be no serious delay.

The Benguet Consolidated also suffered slightly from the storm, but everything was repaired in about 36 hours. The six stamps are now in operation.

Manager A. J. MacDonald of the Tambaga Mining Co. operating on the old Tambaga workings in the Camarines, left for the scene of operations, the latter part of May, with pumping equipment, and it is believed that within 30 days the water will be taken off to the workings at 100 feet. This mine was abandoned in 1896 and part of the machinery still remains in good order. The mine has been flooded since that time. The Tambaga is considered a rich property and produces free milling ore of a high grade. The company is one recently formed and referred to in the FAR EASTERN REVIEW some time ago.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

	U. S. Currency.
ABRASIVES.—	
Bort, good drill quality ....carat....	$ 85 00
Carborundum, grains..................lb....	.10-.17
Corundum......................................."....	.07-.10
Emery, grain..................................."....	.035-.045
Pumice Stone, American powdered..............................100 lbs....	1.60-2 00
ACIDS.—	
Hydrochloric 20° ....lb....	1.25-1.50
Nitric, 38° ...."....	4.25-4.625
Sulphuric, 66° bulk...................ton....	18 00
Aluminum, Sulphate Com'l..........lb....	1.25-1 75
Antimony, needle.............................."....	.05- 065
Arsenic, white...................................."....	.C45-.05
ASPHALTUM.—	
Trinidad...ton....	28 00-30.00
California.."....	51.00-27.00
Bleaching powder, 35%............100 lb....	1 25-1.40
Blue Vitriol.."....	5.50
Bone Ash..lb....	.02¾-.04
Borax.."....	.045-.0 525
*Caps detonating..............................M....	7 50
CEMENT.—	
Portland, American.....500 lbs. bbl....	1.55-1.60
Foreign.............................. " "	2.25-2.90
Rosendale ....300 " "	.85
*Green Island ....375 " "	2.65
*Alsen..	2.75
*Dromedary	2 50
*Rizal..	2.50
*Independencia..	2.50
CLAY, CHINA.—	
American common...............lg. ton....	8 50-9 00
Foreign.."....	10.00-17.50
COALS.—	
*Japanese	5 25
*Australian	5 50
Copper..lb....	.16½-.16½
Dynamite 40%......................................."....	.20
Redspar ground best............sh. ton....	14 00
icrk, BAmerican ....M....	30.00-40 00
Imported..........................."....	30 00-45.00
Fire clay, St. Louis Mill..................ton....	2 50
Fuse-Blasting ....1,000 ft....	7 50
Graphite-American ore, common..lb....	.01-10
Artificial ....lb....	.06
Gypsum-Fertilizer.....................sh ton....	7 00
Powdered......................sh. ton....	12 to-20
Lead ....lb....	.03½-04½
Magnesite-Greece, crude, 95%..lg. ton..	8.00-10 00
Bricks, domes.................per M....	160-200
Manganese, pure, 98-99%.................lb....	.06
Ore, 80-85%.........sh. ton....	20 00 to 50.00
Mercury, export flask.................75 lbs....	36.00 39.00
PAINTS AND COLORS.—	
Litharge American P'w'd...............lb....	.06½-.06¾
Ochre, Am. Com.......................sh. ton....	8.50-9.00
Paris green, pure, bulk..................lb....	.26
Turpentine, spirits, bbl..................gal....	.44½-45
White lead, Am. dry.........................lb....	.05¾-06
Am. in Oil............................."....	.06½-.06¾
Zinc, white, Am. extra dry ...."....	.05⅛-.05½
Phosphates, Acid.....................per unit....	65-.70
Florida hard rock..................lg. ton....	10.25-10 50
Land pebble 68%.... "	5 25-5 50
Potassium Cyanide (98-99%)..........lb....	18-19
Platinum...oz....	27 00-29 50
Platinum, Scrap ....oz....	20.00-21.00
Spelter...lb....	053-.055
Nickel...lb....	.015-06½
Cobalt unrefined...................................."....	.20-.45
*Powder, black blasting A...............lb....	.1½
*Judson ...."	.130
Pyrite, Domestic Non-arsenical, lump.......................................unit....	.11-.11½
Imported non-arsenical lump...."	.13-.13½
Imported, arsenical " ...."	.12-13
Saltpeter crude.........................100 lbs....	4 50-5 00
Silica, Lump quartz.....................lg. ton....	5 00-6 00
Ground quartz, ordinary "	13 00-15 00
Glass sand, ordinary......... "	2 75
Silver ....oz....	.61⅝
Sodium cyanide (100% KCN)..........lb....	.18-.19
*Steel, octagon drill.............................lb....	.14
Sulphur, Louisiana prime....lg. ton....	22 00
Roll ....100 lbs....	1 85-2.15
Flowers sublimed.... "	2.20-2 60
Talc—Domestic.........................sh. ton....	15 00-25.00
Italian, best............... "	35 00-40.04
Tin...lb....	.02
Zinc,..."....	.15
Dust ...."....	.05-.06¾

*Manila quotation.

HEMP STATISTICS, 1st JUNE, 1908.

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st May 1908		290,629 *Bales*
Arrivals of hemp at Cebu up 31st May 1908		112,183 *Bales*
		402,812 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908........		129,359 *Bales*
TOTAL...		532,171 *Bales.*
Export to all ports to date 31-5-08	396,253 *Bales.*	
Local consumption estimated at..	2,000 "	398,253 *Bales.*
Total stocks at Manila and Cebu on 1st June, 1908		133,918 *Bales.*

EXPORT OF HEMP, MAY, 1908.

Date		*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East California*	*Continent*	*Australia*	*Other Pts.*	*T t Bales*
May		Fwd:—	119,345	46,516	102,812	14,407	22,374	5,794	15,102	326,350
"	1	Loongsang..........	407				117		200	724
"	2	Rubi..................	100	250			1,150		200	1,700
"	5	Taming..............							250	250
"	7	Kumeric............				3,500			100	3,600
"	8	Yuensang							50	50
"	9	Peleus...............				1,180				1,180
"	"	Yawata Maru......							200	200
"	"	Zafiro................							250	250
"	"	Sikh			10,875					10,875
"	11	St. Egbert	3,900							3,900
"	"	Clan McMillan...				1,500				1,500
"	"	C. Lopez y Lopez.		1,620						1,620
"	"	Tsinan................							2	2
"	12	Tean							40	40
"	15	Loongsang..........	1,200	800			575			2,575
"	"	Rubi							150	150
"	16	Bombay Maru.....	7,200							7,200
"	18	Kumano Maru.....						1,190		1,190
"	21	Satsuma.............			4,850					4,850
"	23	Prinz Sigismund.						140		140
"	"	Shawmut............				2,047			179	2,226
"	25	St. Egbert....Cebu	6,100							6,100
"	"	Kaifong......Cebu							40	40
"	31	Poona.........Cebu	3 682	2,694			150			6.526
"	"	Satsuma......Cebu			13,067					13,067
"	"	Sungking....Cebu	50							50
			141,984	51,880	131,604	22,634	24,366	7,124	16,763	396,355
		LESS	100			2				102
			141,884	51,880	131.604	22,632	24,366	7,124	16,763	396,253

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for May, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $13,500,000 i $250,000	$2,000,387	31-12-07	Final of £2 on old and £1-10/- on new shares for ½ year ending 31-12-07	5	$750 £76-10/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	8½	$235 sellers
North China Insurance Co., Ld.	1893	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Interim of 7/6 ex 2/5¾ for 1907	6	Tls. 77½
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $456,407 j £125,137.15 u $434,434	$2,506,001	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$795
Yangtsze Ins. Association, Ld.	1862	$1,040,000	12,000	$100	$60	$100,000 j $199,032 f $85,157	$591,763	31-12-07	$12 and bonus $3 for 1906	9¾	$152½
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,00	20,000	$100	$20	$1,000,000 x $346,097 f $13,802	$372,432	31-12-07	$6 and bonus $2 for 1906	8¾	$92 buyers
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	$1,323,941	$428,047	31-12-07	$27 for 1906	8¾	$315
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$1.035	31-12-07	$1 for 1906	....	$16 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10	$40
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $575,000 f $75,279 $20,000	$16,437	31-12-07	$1½ for 2nd half year making in all $2½ for year ending 31-12-07	7¾	$29¼ buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 i £270,000	£3,694	31-12-06	5/- @ ex. 2-2¾ = $2.24 per share for 1906	3¾	$38 $24
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Final of Tls. 1¾ making Tls. 3½ for 1907	7¾ 7¼	Tls. 44 sellers Tls. 51 sales
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £1871	£172,370	31-12-06	Second Interim of 1/- (Coupon No. 9) for a/c 1907	4½	45/
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 / 50 cts. for year ended 30-4-07	3¾ 3½	$25 ex div. $15 ex div.
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 82,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 49 sellers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $56,848	Dr. $.79,371	31-12-07	$8 for year ending 31-12-06	....	$125 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,132	31-12-07	$3 for 1897	....	$ 22
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	....	Tls. 77½ buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £54,390	£11,556	28-2-07	Interim of 1/6 (Coupon No. 10) for a/c 1908	7¾	Tls. 15¾ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £11,358	31-3-07	No. 12 of 1/- = 48 cents	....	$8½
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	...	$13
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	6¾	$52 sales
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500 000	50,000	$50	$50	v $50,000 $100,000	$441,442	31-12-07	Final of $4 making $8 for 1907	7¾	$103 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100		Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	7	Tls. 87 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	Tls. 1,000,000 b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Final of Tls. 9 making Tls. 17 for 1907	7½	Tls. 226 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 100
Astor House Hotel Co., Ld.	1901	$750 000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	10½	$22¼ buyers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	20 per cent. for 1906	....	Tls. 70, sellers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	....	$12¼ sellers
Hongkong Hotel Co., Ld.	1866	$600.000	12,000	$50	$50	$648,975 r $	$252,	31-12-07	$4 for 1st half-year ending 30-6-1907	7¾	$95 sales
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$36,915	31-12-07	Final of $3½ making $7½ for year ending 31-12-07	7	$100 sellers.
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7	$10 buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1¾ for 1907	6¾	$26 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 / e Tls. 170,000	Tls. 107,547	31-12-07	Final of Tls. 3 & bonus of Tls. 2 making in all Tls. 8 for 07.	7	Tls. 119 sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	6½	Tls. 90.
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Final of $2.10 making in all $4.10 for year endg. 31-12-07	8⅓	$48 sales & b.
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 / Tls. 23,276	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4½	Tls. 58 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	4½	$11
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 62 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 77½ buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2 000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 260 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 7½
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	11	$11
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$7
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3,593	31-12-07	80 cents for 1907	9	$9 buyers
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 / $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	6½	$20
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Final div. of 75 cents making in all $1¼ for 1907	11½	$10¾
Hall & Holtz, Ld.	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	12½	$20 sellers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$9,231	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	7½	$15¾ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,378	31-12-07	Final of $15 making in all $19 for 1907	8½	$225 sales
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$100,000	$8,191	31-12-07	Final of $1.20 making in all $2 for 1907	6½	$30 buyers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for first quarter	6½	Tls. 510 sellers
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $10	5.000	$ 7,340	30-4-07	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 / 4	$14 / $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	7	Tls. 109 sellers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / u Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	....	Tls. 92½ sellers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	15	Tls. 375 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41 934	28-2-06	None	....	$23 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	78	31-5-07	40 cents for year ending 30-5-07	6⅔	$6 sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97 sellers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	4½	$11
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$13,000	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founders' shares for year ending 31-5-07	6½	$13
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / $25,000	$5,482	31-12-06	Interim of 30 cts. for % 1907	6⅔	$10 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg. 31-7-07.	....	$165 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5½ buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par.
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 97
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	par.
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government, Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold cents 50 for year ended 30th June 1907	May 1908
Wei-hai-wei Gold Mining Co., Limited	$1 nominal		$700,000	35,000	$20	$20	—	None	—
Kiang pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Tsingtau Hotel Company, Ltd.	nominal		$250,000	2,500	$100	$100	—	5% & 2% bonus for 1905	May 24, 1906
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$40 buyers		$250,000	5,000	$50	$50	—	—	—
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	Dec. 11, 1907
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	—	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	4% for half year ended 31 Oct. 1907.	Dec. 17, 1907
Shanghai Mutual Telephone Co., Limited	Tls. 53½ buyers	53½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 4 for 1906	—
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Interim of 4% for 1907	Jan. 15, 9081
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 87	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 92	,, 125,000	" 47,800	" 100	5½ ,,	Do
do 1894	,, 100	,, 105,000	" 60 000	" 100	6 ,,	Do
do 1895	,, 87	,, 115,000	" 110,9 0	" 100	5 ,,	Do
do 1896	,, 87	,, 140,000	" 135,700	" 100	5 ,,	Do
do 1897	,, 87	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 100	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 92	,, 83,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 100	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 100	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 100	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 100	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 100	,, 320,000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept.
Shanghai Land Investment Co., Debentures 1890	,, 99	,, 250,000	" 250,000	" 100	6 ,,	May. & Nov.
do 1892	,, 92	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 99	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 87	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do 1900	,, 99	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 99	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 92	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 99	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 99	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1894	,, 99	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 87	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 99	,, 50,000	" 50,000	" 100	6 ,,	Do
do 1900	,, 99	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 99	,, 100,000	" 100,000	" 100	6 ,,	Do
do 1903	,, 99	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures 1902	,, 100	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1897	,, 87	,, 100,000	" 100,000	" 100	5 ,,	Do
do 1899	,, 99	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 99	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 99	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	,, 100	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 102½	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 96	Tls. 170 000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, May, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	......	25% for year ending 31-3-07	Belat Tin Mining Co., Ltd	6.00	6.25	6.25
1907	$300,000	225,000	22,500y	10	10	......		Bruang Ltd	6.75	7.00	7.00
1901	$600,000	600,000	60,000	10	10	......	20% for year ending 30-4-07	Brusch Hydraulic Tin Mining Co., Ltd	11.00	....	11.00
1903	£400,000	350,000	350,000a	1	1	......		Duff Development Co., Ltd	3.15	3.25	3.25
1907	$400,000	375,000	37,500b	10	10	......		Kanaboi, Ltd	....	4.00	4.00
1901	£60,000	60,000	60,000	1	1	......	2/- during 1907	Kinta Tin Mines, Ltd	....	10.75	10.75
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd	....	5.00	5.00
1905	$150,000	99,000	9,900c	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd	8 50	8.75	8.75
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd	6.75	7.00	7.00
1906	£30,000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd	....	14/6	14/6
1906	$450,000	337,500	45,000	10	7.50	......		Malacca Tin Dredging Co., Ltd	....	....	7.50
1906	£250,000	179,500	600,000h	5/-	5/-	......		Pahang Consolidated Co., Ltd	28/-	28/6	28/-
			100,000	1	1	......		" " " 7% Pref	....	....	nominal.
1907	£100,000	80,000	80 000j*	1	1	......		Pengkalen, Ltd	6.25	6.75	6.75
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd	....	5.00	5.00
1907	$450,000	300,000	30,000h*	10	10	......		Rahman Hydraulic Tin Mines, Ltd	10.00	10.25	10.25
1905	£27,000	21,750	21,750e	1	1	......	1/- interim during 1907	Rambutan, Ltd	—	10.00	10.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully. pd.*	6.00	6.25	6.00
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	6.00	6.25	6.00
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd	....	3.00	3.00
1898	Gs2.500,000	2,500,000	25,000	100	100	......	71% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd	....	....	870.00
1900	$110,000	110,000	22,000	5	5	......	10% for 1907	Royal Johore Tin Mining Co., Ltd	0.75	1.00	1.00
1907	$500,000	500,000	50,000	10	10	......		Salak South, Ltd	7.75	8.10	8.10
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd	....	4.00	4.00
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd	7.50	8.00	8.00
1899	$230,000	230,000	23,000	10	10	......	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	4.25	4.50	4.50
1907	£90,000	70,000	70,000z	1	1	......		Tekka, Limited	....	9.00	9.00
1902	£160,000	149,185	149,185f	1	1	......	5/- during 1907	Tronoh Mines, Ltd	....	13.00	13.00
								RUBBER			
1905	£150,000	124,125	46,500g	1	1	......	20% for year ending 31-12-07	Anglo-Malay Rub. Co., Ltd. *Fully paid*	....	....	3, 7. 6
			103,500	1	15/-	......		" " " *Contributory*	....	....	3, 2, 6
1905	$200,000	105,000	10,500g*	10	10	......	12½% interim for 1907	Balgownie Rub. Estate Ltd	....	16.00	16.00
1904	£30,000	15,250	7,000i	1	1	......		Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	2. 15. 0
			11,000	1	15/-	......		" " " *Contributory*	....	....	2. 5. 0.
1903	£70,000	61,000	61,000j	1	1	......	10% interim for 1907	Bukit Rajah Rubber Co., Ltd	....	....	4. 5. 0.
1906	$150,000	125,000	12,500k	10	10	......		Castlewood Rubber Co., Ltd	....	9.50	9.50
1904	£12,000	10,500	6,000	1	1	......	15% interim for 1907	Cicely Rubber Estates Co., Ltd	....	....	4. 5. 0.
			6,000	1	15/-	......	15% interim for 1907	" " " " 5% *Pref*	....	....	5 0. 0.
1905	£75,000	55,000	55,000l	1	1	......	10% for year ending 31-12-07	Consolidated Malay Rub. Estates, Ltd	....	2.10.0	2. 7. 6.
1906	£310,000	243,227	181,454m	1	1	8,784	12½% for year ending for 31-12-07	Highlands & Lowds. Para Rub. Co., Ltd.	1.16.0	1.17.6	1. 16. 0.
			123,546	1	10/-	......		" " " " *Contributory*	1.3.6	....	1. 3. 6.
1906	£180,000	180,000	180,000	1	1	......	3% interim for 1907	Kuala Lumpur Rubber Co., Ltd	....	....	1. 2. 6.
1907	£320,000	201,500	184,000d*	1	1	......		Lanadron Rubber Estates, Ltd	....	....	nominal
			70,000	1	5/-	......		" " " *Contributory*	10/6	11/-	10/6
1906	Gs 175,000	175,000	540	250	250	......		Langen Rub. and Cocoanut Co., Ltd	....	....	250
			160	250	250	......		" " " " " *Deferred*	....	....	250
1906	$250,000	225.000	22,500n	10	10	......		Ledbury Rubber Co., Ltd	....	9.50	9.50
1895	£100,000	76,100	900,000e*	2/-	2/-	......	10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	9/9	10/-	10/-
			10,000	1	1	......		" " " 7% *Pref*	....	....	1. 0. 0
1906	£300,000	260,625	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	1.0.0	1.1.6	1.16
			140,000	1	1	......		" " *Ordinary*	9/-	10/-	10/-
			45,000	1	2/6	......		" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000o	1	1	......	35% for year ending 31-12-07	Pataling Rubber Estates Synd. Ltd	....	....	5. 2. 6
1906	$250,000	225,000	22,500b*	10	10	......		Ragalla Rubber Co., Ltd	....	10.00	10.00
1904	£20,000	8,794	2,588a*	1	1	......		Sagga Rubber Company Limited	....	....	2. 10. 0.
			12,412	1	10/-	......		" " "	....		275.00
1904	$100,000	99,000	990k*	100	100	......	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd	....	275.00	15/-
1898	£30,000	30,000	300,000	2/-	2/-	......	25% interim for 1907	Selangor Rubber Co., Ltd	....	....	15/-
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd	100.00	115.00	115.00
1905	$100,000	100,000	10,000	10	10	......	7½% for year ending 30-6-07	Sione Rubber Co., Ltd	....	....	13.50
1906	£100,000	93,357	73,500	1	1	......		Sungei Kapar Rubber Co., Ltd	....	....	2. 5. 0
			26,500	1	15/-	......		" " " " *Contributory*	....	....	2. 0. 0
1904	£50,000	41,920	50,000p	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd	....	....	£2. 0s. 0d.
1904	£60,000	50,000	500,000q	2/-	2/-	......	25% interim for 1907	Vallambrosa Rubber Co., Ltd	11/6	12/-	12/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688c*	12/6	12/6	1,300	10% for year ending 31-12-6	Bells Asbestos Eastern Agency, Ltd	....	....	6.50
1898	$225,000	225,000	4,500	50	50	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd	....	132.50	132.50
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 13,500,000u 250,000v	£2-0-0 on old and £1 10s 0d on new shares for ½ year ending 31-12-07	Hongkong & Shanghai Bank'g Corpt'n	....	....	76 5. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd	....	135.00	135.00
			6,000	100	....	......	7% for year ending 31-10-07	" " 7% *Pref*	....	120.00	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	....	130.00
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal.
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-07	Maynard & Co., Ltd	....	19.50	19.50
1899	$875,000	875,000	6.000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd	....	100.00	100.00
			2,750	100	100	......	7% for year ending:31/12/07	" " " " 7% *Pref*	....	107.50	107.50
1903	$600,000	240,000	24,000r	10	10	......		Singapore Cold Storage Co., Ltd	....	6.00	6.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	....	42.50	42.50
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	5/3	5/6	5/6
1904	$160,000	112,000	1,120f*	100	100	11.200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd	50.00	55.00	50.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	....	....	130.00
1890	$500,000	500,000	4,956i*	100	100	400,000 458,925w	10% for year ending 31-12-07	Straits Steam Ship Co., Ltd	190.00	195.00	195.00
1904	$40,000	$35,350	2,535s	10	10	......		Straits Tobacco Factory, Ltd	....	2.50	2.50
			1,000	10	10	......		" " " "	....	....	nominal.
1887	$3,000,000	3,000,000	300,000	10	10	1,150,000 1,193,659y	10% & 5% bon. for ½ yr. end. 30-9-07	Straits Trading Co., Ltd	....	48.50	48.50

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h 100,000 " *Ord.*; 45,500 " *Pref.*
i 12,000 "
j 9,000 "
k 2,500 "
l 20,000 "
m 5,000 "

n 2,500 unissued.
o 10,000 "
p 8,080 "
q 100,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "

a* 5,000 unissued.
b* 2,500 "
c* 916 "
d* 66,000 "
e* 239,000 "
f* 480 "
g* 9.500 "
h* 15,000 "
i* 44 "
j* 20,000 "
k* 10 "

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	3%	3% prem.
Riley, Hargreaves & Co., Ltd. 6% .225,000	....	3%	3% prem.
Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	3%	....	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	10%	....	10% dis. nom.
Straits Engineering Synd. Ltd. 6% .45,000	....	....	par.
Tanjong Pagar Dock Board 5% .1,050,000	par.	....	par.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MAY, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	10%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.53	31-3-07	10%	for ½ year	75 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	10,000	-Y- 8,762.67	31-12-07	5%	for ½ year	100 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 14,115.95	31-12-07		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,729.20	31-10-07	20%	for 1 year	42 Sellers.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	10%	for ½ year	80 Sellers.
Oriental Hotel, Ltd., Ordinary	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100	3,259.65	1,774.45	30-9-07	7%	9 mos.	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

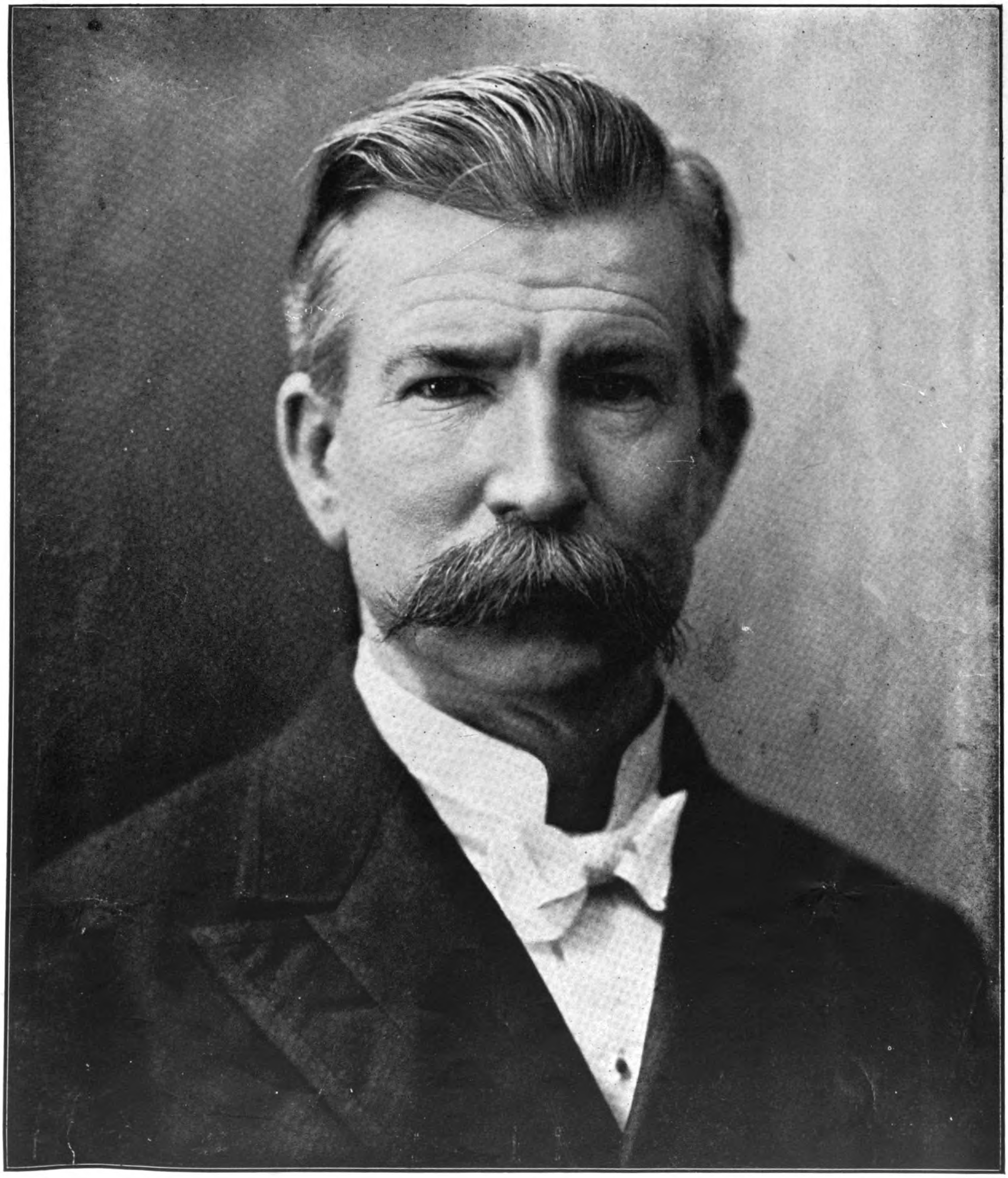
DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y-101.30
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 94.40
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 92.60
Consolidated Bonds (Seiri)	100.	100	5%	June and Dec.	,, 80.30
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 80.30
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 80.00
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 81.20
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 94.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 93.80
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 89.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 92.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 95.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 500.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	8%	June and Dec.	,, 56.45
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 36.00
Keihin Electric Tramway Company, Limited	50	50	13%	June and Dec.	,, 63.50
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 23.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 85.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 76.30
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 73.50
Tokyo Cotton Spinning Company, Limited	50	50	18%	July and Jan.	,, 31.70
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 50.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 6.10
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	17½%	May and Nov.	,, 61.65
Ensuiko Sugar Refinery Company, Limited	50	12½	18%	June and Dec.	,, 14.00
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 76.10
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 56.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 48.50
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 7.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 65.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 79.40
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 81.10
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 65.00
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 80.00
Yokohama Union Electric Light Company, Limited	50	50	15%	July and Jan.	,, 69.00
Fuji Paper Mills	50	50	10%	June and Dec.	,, 43.00
Otaru Timber Company, Limited	50	50	15%	March and Sept.	,, 17.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 103.50
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 90.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 38.50
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	, 99.25
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 101.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 69.00

BANGKOK QUOTATIONS

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 505	Tcs. 505	1901	£ 300,000	30,000	£ 10	£ 300,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 200	,, —	,, 210	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1906
Siam Tramway Co., Ltd.	,, 160	,, 168	,, 168	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1907 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, 124	,, 127	,, 129	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	2½%	Dec. 31, 1907
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	June 30, 1907 Dec. 31, ,,
Howarth Erskine, Ltd.	,, —	,, —	,, 235	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	7½%	Oct. 31, 1907
Bangkok Dock Co., Ltd.	,, —	,, —	,, 305	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 100	,, 100	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, 1,350	,, 1,450	,, 1,450	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	2½%	Sept. 30, 1907
Menam Motor Boat Co.	,, 130	,, —	,, 140	1905	,, 200,000	2,000	,, 100	,, 125,000	—	5%	July 31, 1907
Jenderata Rubber Co.	,, 65	,, 70	,, 70	1906	£ 40,000	4,000	£ 10	£ 3, per Share	—	None	—
Langsuan Tin Mine Co.	,, —	3/	4/	1905	£ 170,000	170,000	£ 1	£ 60,000	—	—	—

Supplement to THE FAR EASTERN REVIEW
July, Nineteen Hundred and Eight



Hon. Luke E. Wright

Secretary of War for the United States of America

UNIV. OF MICH.

THE FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JULY, 1908 No. 2.

The Hon. NEWTON W. GILBERT,

Member of the Philippine Commission

Newton W. Gilbert resigned his position as a member of congress representing a district in Indiana to accept the appointment as judge of the court of first instance of the Philippines, in 1906. His was among the names sent to the senate to fill the vacancies on the Philippine Commission. The position does not carry a portfolio.

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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THE IMPERIAL CHINESE TELEGRAPHS

The movement on the part of the Peking government to nationalize the telegraph system throughout the empire is the subject of much comment, some adverse, not so much against the desire of the government to control, extend and perfect the system, as to the methods employed. The other objection comes from the mercantile shareholders in the present Imperial Telegraph Administration who have been offered a smaller price for the shares, and in an apparently arbitrary manner, by the Chinese government, than the market price maintained previous to the nationalization agitation.

The main protest comes from the shareholders. According to the *China Gazette*, the meeting at Shanghai where the matter was discussed by Sheng Kung-Pao representing the Board of Posts and Communications, with a number of the leading shareholders, was far from congenial as the following report indicates:

"Sheng Kung-pao, speaking on behalf of the Board of Posts and Communications, stated that in foreign countries the government frequently nationalises railways and telegraphs. Mr. Hu replied that in foreign countries the Government invariably considers the wishes of the private shareholders, and the shares are always paid for according to the market value, instead of as at present the Board naming its own price, without consulting the wishes of the owners.

"Sheng Kung-pao:—The object of the conference is to discuss the matter with you, gentlemen, so that the Board may be acquainted as to your wishes.

"Mr. Hu Erh-mei:—Is that true that the Board is offering to buy the shares at $170?

"Sheng Kung-pao:—That is the market value, is it not?

"Mr. Hu Erh-mei:—The Government can compel the people to sell their shares at any price; it has the power to do so, but such a policy is quite inconsistent with the decided policy of the Imperial Government when the Throne has repeatedly ordered that all commercial enterprises and undertakings are to be effectively protected and the Government is also anxious that the capitalists should invest their money in great industrial and commercial schemes. The present policy pursued by the Board will tend to discourage private capitalists from investing their money in such undertakings as the telegraphs.

"Sheng Kung-pao:—But the Board is offering to buy the shares at their market value.

"Mr. Hu Erh-mei:—$170 is not the market value. The shares, together with the dividend and interest, should be valued at $300 each. Last year telegraph shares were bought in the market for $200 each, and the present fall in value is the result of the consternation caused by the Board wanting to buy these shares and at the same time paying only $170.

"Sheng Kung-pao:—Who were the parties who sold and bought these shares at $200? (The names of the parties in that transaction were given.)

"Mr. Su Pao-sun:—This year's dividend will be $20 a share, so the true value of the shares should be $300; even with the latter price the investment is not a bad one, as it gives 20 per cent. interest.

"Mr. Hu Erh-mei:—Now the Imperial Chinese Telegraphs make money. Should the reverse happen and the shares be worthless, would or would not the Board buy them at $100 a share which is its original value,

"Sheng Kun-pao smiled and did not reply. He added that he would write to the Board communicating with the latter the conversation that took place at the conference."

The object of this nationalization of the Chinese telegraphs is explained by the correspondent of the *North China Daily News* as follows:

"1. To convert the administration into a Chinese Government department.

"2. To increase its capital to at least Tls. 5,000,000.

"3. To repair thoroughly all cable and land lines where necessary.

"4. To construct new lines in Manchuria, Mongolia and Tibet and also in some places in China proper for the general improvement of communications."

In connection with the representations made to the International Telegraph Conference held at Lisbon, made by China respecting the infringements of her national rights in Manchuria and elsewhere, Dr. Morrison offered the following scathing criticism of the system in China which throws some light on the subject:

"While China undoubtedly has a grievance, the knowledge of the present condition of her telegraph administration makes it improbable that the statement will receive a favorable hearing. Her inland telegraphs are, perhaps, the worst in the world.

"In the proper sense of the words there is no Imperial telegraph system. The telegraphs belong to a private company in which the Imperial Government has a half share. There is no proper control and no central administration.

"There are separate provincial organizations under separate Viceroys, and the service is deteriorating instead of improving, especially since the Fokienese Chen-pi was appointed Minister of Communications, for he treats the office as a means of finding berths for his fellow-provincials.

"Under capable administration, with a uniform charge similar to that in other countries, the service might become a great national revenue-producing department, increasing trade and commerce, consolidating the nation, breaking down provincial barriers, simplifying money exchange. Seven highly competent Danes are the only foreigners employed on the telegraphs throughout the Empire.

"At present the charges are prohibitive, preventing the use of telegraphs for private or commercial purposes. For example, recently I visited two important cities with a quarter of a million inhabitants each. Yet the number of private messages sent from each average only twenty a day."

As predicted by Dr. Morrison, the international conference turned down the petition of the Chinese government for the reason that although Taotai Chou Wan-peng, the Chinese delegate, presented a statement to the conference concerning the establishment of foreign offices in Manchuria in infringement of China's rights, the representatives of the different powers expressed themselves against giving the matter a favorable hearing unless China removed the existing irregularities and excessive charges for the telegraph service. With his report, the Chinese delegate urges prompt reform.

Commenting further on this subject the *North China Daily News* says:

"Between complaints abroad and complaints at home China has abundant excuse for drastic action, even at the expense of the apparent injustice of compulsory acquisition of the Telegraph Company's shares from ther present holders. There is no doubt that the service might become a valuable asset to the nation both for revenue and consolidation; while its reversion into the hands of the supreme power would be a powerful factor in that policy of centralization which is now so clearly Peking's ideal.

"It is clear that the shareholders do not intend to relinquish their property without a struggle. Urgent protests have been sent to Peking from the Shanghai native merchants involved: and even the announcement that the Ministry of Posts and Communications is prepared to pay $170 a share does not mollify them. They prefer the present investment for their money, which, with all its disadvantages, is admittedly remunerative. With some reason they ask where the necessary funds are to come from: and the answer given is, a foreign loan. But considering that such a loan would have to provide, according to the Government's present scheme, for all repairs now necessary; for the construction of new lines in Manchuria, Mongolia and Tibet and the improvement of others; for an increase of the department's capital to Tls. 5,000,000 and for the temporary losses consequent upon a reduction of the tariff by one half, it is not surprising if the

shareholders are sceptical as to the amount in hard cash that may remain for their own claims. What they not impossibly fear is that the shares may be taken from them at a number of years' purchase; worse still, that payment might be made contingently upon future profits. Here indeed the Government has to see that one portion of the community is not forced to suffer unduly for the benefits of the whole, and this as much for reasons of common sense, as of common justice. Peking, as usual, is divided on the question, the opponents of Government acquisition objecting that enforced purchase will destroy public confidence among those who have money to invest; while others suspect that the Minister of Posts and Communications, Cheng Pih, is actuated too much by motives of private interest for the good of the undertaking. On the other hand the leaders of the reform Party would appear to be in favor of Government control: and if the conversion is effected gradually for the avoidance of friction, there is no insuperable reason why it should not be made. Even in the countries where private enterprise has reached a far more advanced stage than in China, it has been found that Posts and Telegraphs are best left in Government's hands."

In all the history of the Chinese telegraph the greatest success attained in organization and direction was under foreign control and it would seem advisable at this time, when the government is undertaking the project of nationalization, that it should have the best experience available to direct the work and this can only be attained by securing the services of foreign experts, not only in the organization of this enterprise but in its operation until such time as the service has reached that state of efficiency under carefully trained Chinese experts, developed in the process, that will invite the confidence of the leading Chinese and foreign interests. The development of such a system as might compare favorably to the postal system originally organized under the direction of Sir Robert Hart, would reflect the highest possible credit to the Chinese government; even if a decade were exhausted in bringing it up to that standard it would be a remarkable achievement.

SEPTIC SEWAGE AND CONCRETE

In utilizing concrete in the construction of septic tanks special provision seems to be necessary to provide against the deteriorating action of the sewage and this has been made the subject of interesting and instructive comment by the *Engineering Record* in a recent issue.

That magazine says:

"Mr. W. S. MacHarg, of Chicago, when directing an excavation along one wall of a concrete septic tank, which had been in service between four and five years, found the concrete in that wall to be in such a badly weakened condition that the wall was collapsed by the pressure of the contents of the tank when the backfill against it had been removed. The concrete was well made with good cement when the tank was built and had shown no previous indications of deterioration. Mr. W. S. Shields, also of Chicago, under whose direction the tank was constructed, found recently that the concrete in two other septic tanks built under his supervision about five years ago in the South has evidenced recently very serious injury, which can scarcely be attributed to any other cause than the effects of the products of the action which occurs in the tanks. The upper 5 ft. of the walls of one of these tanks are above the ground level, and were perfectly tight during the first three years following the completion of the tank. About that time seepage through these walls began, and Mr. Shields found several considerable leaks through the concrete on a recent visit to the tank. The surface of the concrete bottom of a second tank in the same city, when that tank was recently cleaned, was also found to be loosened so it could be shoveled out like so much broken stone.

"The two latter tanks receive straight domestic sewage containing no trade wastes. The first tank mentioned was built to treat the domestic sewage of a large manufacturing establishment, and receives practically no trade wastes from the shops of this establishment. Neither Mr. MacHarg nor Mr. Shields have undertaken to determine certainly whether the concrete in these three cases has been impaired by the action of the septic sewage, as it appears to have been. Both of them are, however, sufficiently convinced that some such action may be expected that they contemplate further investigations of concrete in other tanks, and in outfall sewers that have been in service long enough to show any results from the action of the septic sewage that may occur. While it is conjectural to state that septic sewage may seriously affect concrete, even though not for some years after the completion of a structure, detailed studies of this phase of the maintenance of sewage works will be fully justified. Should any detrimental results be shown to be caused by such action it may be necessary to use some other materials for structures subjected to the action, or some method of protecting the concrete from contact with the septic sewage."

There would seem to be sufficient reason for a series of experiments in regard to the action of sewage on concrete with a view to ascertaining the element responsible for the deteriorating effect, and for the purpose of providing against the possibility of injury to concrete construction in connection with sewage.

INCIDENTS INTERESTING IN FAR EASTERN RAILROADING

There is a seeming monotony in the operation of railways in Eastern Asia, or that is the way it strikes a Westerner, but there are times when the spectacular is presented in forms that make unusual experiences in Europe and America pale into insignificance in comparison. It must be remembered that the railroad is as yet a novelty in many sections in China and there is much local prejudice against it in sections newly invaded. In this connection the experience of a train crew on the Shanghai-Nanking Railway indicates that it is a difficult task to hurry the East and not at all easy to change the fixed purpose of an obstinate Chinaman in his own bailiwick. It is the story of how a Chinese, the bereaved family of a native of Lungtan who was killed by a train, held up the Shanghai Express and had to be dispersed with a force of soldiers before it was allowed to proceed. The following graphic account of the incident is from the *North China Daily News* of recent date:

"It appears that the slow train, which passes through Lungtan, between Chinkiang and Nanking, about 4.03 p. m. ran over and killed a young villager, who crossed the line in front of the engine. When the Shanghai express, which reaches the neighbourhood about two hours later, reached Lungtan the passengers were informed that they could travel no further, as the slow train had been held up. Mr. Dunstan, locomotive superintendent, and several other railway officials discussed the matter with the passengers, and one of the latter, who could speak Chinese, volunteered to go forward and parley with the angry villagers. Ten soldiers from Lungtan were taken up as an escort, and, proceeding cautiously, reached the scene of the disturbance about dusk. The soldiers and four or five of the foreign officials and passengers then disembarked, and walked to the head of the held-up train. There they found a young man of about sixteen, dead. His female relatives and members of his family had piled up straw, and were lying across the line, and a crowd of villagers, that was standing round, was backing the bereaved natives up. The father of the dead youth and his employer, as well as the tipao and elders of the villagers, were sought out and a long parley ensued. The villagers seemed not to know what they wanted; some demanded a thousand dollars; others wanted ten thousand. They were promised that they would be dealt with justly if they came on to Nanking, but they refused to credit this assurance, and were not even satisfied with Mr. Dunstan's card with an undertaking to that effect written on the back. They insisted that they must have money to purchase a coffin, and refused with scorn the small sum of ready money that could be offered them. Seeing that further negotiations were fruitless, the order was given to clear the line, and this was done by the soldiers after a smart tussle. The soldiers were then drawn up on both sides of the line, and the slow train was cautiously dispatched on her way. The express followed after another scrimmage to clear the line, and then the villagers gave up the struggle and allowed a third train to pass without more ado."

In Siam the railroader finds himself confronted occasionally with another obstacle to peaceful and secure pursuit of his avocation. When some energetic and frisky young elephant desires to register a protest against the modern order of things down in Siam and the intrusion upon his jungle home by the contemptuous iron monster, he proceeds to waylay the first string of coaches and go juramentado with the moving objective. A description of the latest break in the monotony of the region about 43 kilometers from Bangkok appears in the *Bangkok Times*. It resulted in the death of the local jumbo and the passing out of two of the train crew, while one locomotive was hurled down an embankment and another thrown across the track. The train comprised 23 cars drawn by two heavy locomotives. It was going at a rapid speed when the elephant was sighted directly in front on the center of the track, and apparently impressed with the idea that his position was impregnable. As to the outcome, the *Times* says:

"The elephant was killed outright, and the long train brought to a standstill so suddenly was badly damaged. One of the big locomotives rolled down the embankment and the other now lies across the track. One of the oilers jumped and the engine fell on top of him. He was horribly mangled. The other man killed was one of the brakemen. Three other men were also injured, one so badly that his recovery is despaired of.

"The collision derailed thirteen of the goods wagons and tore the permanent way all to pieces. Several of the wagons contained firewood and this was distributed over a wide area on both sides of the line. The guard's van which was next to the engine was broken into matchwood. Everywhere the line bears traces of the results of the collision, the great carcase of the elephant lying near the engine which brought about its end."

And they say railroading in the Eastern Asia is monotonous.

COLONIZING SIBERIA

While reference is continually made to the political conditions in Russia proper, little attention has been paid to the Eastward movement of Russian industrials, that is serving to reclaim the unoccupied area which a decade ago served in name to provide a synonym for bleakness, exile and extreme cold, now blossoming as the rose under the hand of the Russian husbandman. The report of the minister of agriculture at St. Petersburg throws some interesting light on the subject and would indicate that the Russo-Japanese war instead of discouraging the Russians in the East, served to promote the settlement of Siberia. Indeed, the report indicates that more settlers are arriving from Russia every year than there were soldiers in the Manchuria campaign and that the accumulation of years in numbers and industry means an invasion that more than trebles the Japanese invasion of Manchuria.

According to the report referred to, during the months of January, February, and March of this year, 420,000 Russians of the industrial class settled in Siberia. After the war and up to 1906, an average of 60,000 settlers arrived yearly and then the number jumped in 1906 to 180,000; 1907 to 400,000, and judging from the 1908 movement, a million may be expected to make their homes in this region.

It has been said that the movement was organized by the Russian government to counteract the influence of the Chinese settlers, but this is officially denied. It is claimed that the soldiers returning from the East after the war spread the gospel of Siberia among the poor industrials and the trans-Siberian rail-

way made the emigration possible. It became an Eastern movement of the people for more elbow room and better prospects along the same lines as the great exodus from Eastern America to the great West. In Russia the Greely cry is "Go East, young man," and grow up with the country. This advice is being followed with avidity and those who hope for the regeneration of the country point to this movement as the first important step in that direction.

The wealth of Siberia is as unknown as the territory of Alaska when purchased by the United States or of the fertile territory in the vicinity of Edmunton which at one time was believed to be a land of snows and continual winter by Canadians, before the steam horse invaded that section. The next decade promises equal development for Siberia that has characterized the American and Canadian West in the last decade.

LUKE E. WRIGHT

The appointment of General Luke E. Wright to the portfolio of War in the cabinet at Washington to round out the remaining months of the Roosevelt administration presages his selection for the same post if Taft is elected president. Comment in the United States assumes that this appointment at this time is nothing more or less than a political maneuver on the part of the administration to catch a part of the Southern gold democratic vote and at the same time to eliminate Wright from the campaign where he might damage Taft's chances. It is well known that while governor-general of the Philippine Islands, General Wright held views as to the correct and wise administration of the Philippine Islands directly opposite to those entertained by Secretary Taft, his predecessor, and to his loyalty, to his personal convictions may be traced his elevation to the embassy at Tokyo.

Wright believed in doing things; he advocated that the entire energy controlled by the government be utilized and directed so as to bring the best possible results in developing the latent resources of the archipelago and creating and encouraging industry among the inhabitants. He believed, as did the FAR EASTERN REVIEW, that America's problem in the Philippines was not political in character, but that there was a real industrial problem that would test the capacity of the best talent and experience to solve. Wright held that once prosperity returned and all industries were brought to a thriving condition with plenty of employment and opportunity for the native to better his material condition, all political agitation would cease and any remaining problems in the Philippines would solve themselves. His words addressed to the Senate Committee of the Philippines were prophetic when he pressed the passage of the Tariff Bill. He told the committee in effect the following:

"We have spent millions in educating the Filipinos. We have devoted our energies to making scholars of them and broadening their viewpoint of life, increasing their necessities and luxuries, and after turning them loose, half educated from the schools, they find no means to satisfy their new aspirations. Gentlemen, we are creating a very dangerous element in the Philippine community."

How true! To-day, the American administration and the American and foreign interests in the Philippines, together with the substantial Filipino interests, are beset on all sides by political agitators, school boy editors and the rag tag and bob-tail of the "Shoe-hombre," all clamoring for the sovereign American people to get out and give them all the governmental positions. There is no other field for them to gain a livelihood.

Wright, while governor-general of the Philippines, stood for material progress, and in so doing incurred the enmity of the job-chasers and political dreamers who refused to work, or put their shoulder to the wheel. Sympathetic, kindly, honest and generous to all who came in contact with him, and in full sympathy with the true spirit and true interpretation of the humane policy laid down by President McKinley, he endeavored to make the native of the Philippines realize the only true road to prosperity and happiness and to help him by kind words of encouragement on the way.

That Wright has been selected by Roosevelt and Taft to rule over the destinies of the Philippines and their people for four years to come, indicates a change of heart in Washington and should bring assurance to Americans and foreigners in the islands, who were Wright's greatest admirers and supporters, that he would not sacrifice his earnest convictions regarding the policy to be pursued in the islands to secure a position in any cabinet, and that his acceptance of the position of secretary of war meant that his well defined position on Philippine policy is to feature his administration, and that Roosevelt and Taft must have been convinced and brought in harmony with General Wright's views.

The Filipino with vested interests in the islands, the foreign and American businessmen in the Philippines, may, we believe, look forward to a new and broader policy which will bring a long delayed prosperity to the archipelago. Some of the leading American newspapers are alarmed at the possibility of Philippine "specialists" controlling the War Department indefinitely to the exclusion of other favorite American statesmen of the domestic order.

In our humble opinion, so long as the United States retain the Philippines, some governor-general in sympathy with the administration in power must perforce be considered as having the strongest claim on the position, and in making the present selection, President Roosevelt has found the one man capable of presiding over the department as a successor of Taft, and the only man who thoroughly understands our needs and who is available. He is also the one man who has sufficient strength and prestige in the United States at the present time, to influence senators and congressmen opposed to favorable Philippine legislation.

THE COLONY AT DAVAO

The progress made by the Spanish and American planters in the district of Davao, Mindanao, which is practically a new settlement, has been remarkable in view of the natural difficulties overcome and the isolation from which these pioneers suffered until quite recently when the Philippine government declared Davao an open port. During the last five years, approximately fifteen plantations have been developed and the output in hemp, according to President L. D. Lewis of the Southern Cross Plantation Company, is over 100 piculs of hemp monthly from each plantation.

In a recent letter from Mr. Lewis published in the *Mindanao Herald* he complains of the lack of telegraphic service which places the planters at a disadvantage in gauging the market. The aim of the planters is to ship the product direct to the home market or to the factory and with an open port together with the improved financial condition of the planters, this will soon be realized.

In addition to hemp, other products have been grown successfully in the Davao district and the hemp is of the very best quality. One drawback to which President Lewis refers is the difficulty in securing titles to the land under the prevailing land laws of the Philippines. It is understood that an effort will be made to interest congress and have the necessary amendments made to give the planters ample opportunity to establish title.

In addition to the agricultural development of Davao, the pearling interests of Davao gulf are steadily increasing in value and additions to the fleet now operating there are being made from time to time.

Once Davao has a line of steamers calling at that port regularly and more definite land laws favorable to settlers, the future of that section of the Moro empire will be assured.

OBITUARY

The sudden death in his office from heart failure of Mr. Rudolf Lemke, managing director of the firm of Messrs. Arnhold, Karberg & Company, about noon June 10th, cast a gloom over the commercial community of Shanghai. He had not been enjoying robust health for months and had, previous to his death, taken a short vacation in Japan, but on the morning of June 10th, he came to his office apparently well. About 11:30 he complained of an acute attack of indigestion, but when medical assistance arrived he was past hope of recovery and passed out at noon.

The deceased was 44 years of age and leaves a widow to mourn his loss. Mr. Lemke was born in Bielefield, Germany, and married a daughter of Sir Julius Arnhold, the founder of the firm of which Mr. Lemke was a partner and managing director at the time of his death. When he first arrived in Shanghai in 1884 he joined the firm of Messrs. Meyer, Lemke & Co. and nine years later he joined Messrs. Arnhold, Karberg & Co. and until 1899 was manager of the branch at Hankow. Since that time he was connected with the Shanghai office. Mr. Lemke expected to return to the homeland for good next October.

The death of Mr. J. J. Macbean, M. I. M. E. and formerly managing director of the firm of Messrs. Howarth, Erskine, Limited, in Singapore, occurred in London last month. Mr. Macbean retired from active life about two years ago and went to the homeland. General regret was expressed through commercial circles in the Straits on receipt of the news from London.

The death of Mr. V. M. Ponpon, managing engineer of the Tongshan Colliery, operated by the Chinese Engineering & Mining Co., was reported from Tongshan, last month. Death was attributed to tetanus. He was 32 years of age. The funeral took place at the international cemetery, Tientsin.

The death of Mr. Peter Taylor, late dock master of the Shanghai Dock & Engineering Co., occurred at Shanghai last month, aged 40 years. Mr. Taylor came to Shanghai in 1899 to accept a position as dock master for the International Dock. Last year he spent his vacation in the homeland. Upon his return was unable to take up his duties and up to the time of his death was under medical care. Mr. Wm. Taylor of the Shanghai Dock & Engineering Co. is a brother of the deceased. The funeral took place at the Bubbling Well Cemetery.

The details of the murder by the wild hill people of Negros of Forester Harry D. Everett, of the Philippine Forestry Bureau, and T. R. Wakely, a teacher of the Bureau of Education, on or about May 4th, has been received in Manila, and the remains of the two men recovered and brought to the capital.

Mr. Everett was proceeding into the Bayaual Mountains for the purpose of making a reconnoissance in the interests of his bureau and Teacher Wakely accompanied him to enjoy an outing. They left the south coast of Negros about April 27th and were last seen May 4th, near the barrio where they were killed and about five days from the coast. Every effort was made to locate the missing men and it was not until July 4th that definite news was secured and the bodies located. It appears that upon arriving at Datag, a barrio in the mountains, they were welcomed by the chief of the village who gave them food and provided shelter. During the night the massacre took place and, according to the best information, the victims were rendered unconscious before the crime was committed. The savages threw some poisonous plant on the fire near the sleepers and the gases therefrom rendered them helpless. With bolos, spears and axes the victims were done to death and the bodies were found lying beside where the victims slept, there being apparently no struggle. No motive for the crime is known. Mr. Everett was the senior forester in the Philippine Service and served as acting-director during the recent absence of Major Ahren. He was born in Malone, New York State.

FINANCIAL AND ECONOMIC CONDITIONS IN JAPAN

Through the courtesy of the Hon. Minister of the Department of Finance of Japan, the FAR EASTERN REVIEW has received the Eighth Annual and Economic Annual of Japan for the year 1908 which contains an extensive annual résumé of finance, the development in industry, agriculture and commerce together with a review of foreign trade. A special section is devoted to banking and the money market that is of special significance in view of the disturbed conditions following the panic in America and the natural depression following the war. The extension of government control of railways and other public utilities is gone into at length and a comprehensive conception of the year's progress in all branches of activity is made available in this highly valuable volume that Secretary Suzuki has made available. The volume teems with maps, diagrams, introductory and comparative tables. In addition to the reference to Japan proper, a special section is devoted to Formosa and another to Karafuto or Japanese Saghalien. The appendices make special reference to Korean finance, administration, products and foreign trade; the finance and economical status of Kwantung province and a general account of the extraordinary war expenses.

In reviewing the general condition of finance and economical conditions for 1907, Secretary Suzuki says:

"A BRIEF ACCOUNT OF THE FINANCIAL CONDITION.—In the Financial Year 1907-8, the extraordinary special taxes and war loans brought over from the preceding year were not yet adjusted, and as the general economic and financial condition had not yet recovered its normal state, not only was there no increase of taxation, but there was also absolutely no issue of public loans other than those intended to be expended on such productive undertakings as the construction and improvement of railways, extension of the telephone system, and establishment of a steel-foundry. The general expenditure was made out with the strictest possible retrenchment in view.

"The estimates for the expenditure in the above-mentioned year put the ordinary expenditure at *yen* 422,771,095 (£43,316,711) and the extraordinary expenditure at *yen* 213,118,795 (£21,835,942), making a total of *yen* 635,889,890 (£65,152,653), which was an increase of *yen* 130,927,401 (£13,414,693) on the preceding year. This increase was mainly due in the ordinary expenditure to an increase in pensions and annuities, the national debt charge, and expenditures of the Residency-General and the Horse Administration Bureau, the transfer of the Warships and Torpedo-boats Replenishing Fund, and an increase of expenditures consequent upon the strengthening of military defences, while the increase in the extraordinary expenditure is attributable to the enormous expenditures required for the enlargement of the harbor accommodation at Kobe, strengthening of military defences, replenishment of warships and torpedo-boats, grants in aid of agriculture and industry, establishment of the Tohoku (North-eastern) University and other educational institutions, and holding of the Japan Grand Exhibition, and for the extension of the telephone exchange business.

"Although the Budget for the Financial Year 1907-8 thus shows a great expansion compared with that for the preceding year, it is mainly because, in the case of undertakings the disbursements for which should be included in the extraordinary war expenses, the expenditures for such as had not yet been completed had been adjusted by including them in the normal Budget as continuing expenditures; and the change was effected in a very economical manner.

"The principal financial events during the financial year under consideration may be briefly stated as follows:—

"*Investigation of the Customs Tariff.*—As the time is now approaching for the revision of the treaties with the treaty powers, the investigation of the Customs Tariff has been carried on since the Financial Year 1906-7, and most of the necessary materials have already been collected.

"*Unification of the Monopoly Business.*—For conducting the monopoly business, the Government recognized the necessity of unifying the business of the various monopolies, and accordingly, after abolishing the existing organizations of the Tobacco Monopoly Bureau, the Salt Offices, and Camphor Offices, established afresh the organization of the Monopoly Bureau to take charge of the business relating to the three monopolies of tobacco, salt, and camphor.

"*Transportation and Sale of Salt.*—With a view to the full supply of salt and the lowering of its price, warehouses for the sale of salt were set up in localities which were deemed specially necessary for the purpose, and the Government took upon itself to transport salt and sell it direct.

"*Direct Sale of Camphor.*—A sole agency had hitherto been appointed for the export and sale of camphor produced in Japan Proper; but as some years had passed since the establishment of the monopoly and there was no longer necessity for such agency, the Government decided to carry on the exportation and sale by itself.

"*Revision of the Coinage Law.*—A Law for revising a portion of the Coinage Law was promulgated on the 6th March last year and put in operation on the 1st April following. The revision consisted in the lightening of the weight of the subsidiary silver coins in order to prevent the melting down of silver coins in view of the appreciation of that metal. The coins struck under the revised law up to the end of November of the same year amounted to a million *yen*.

"*Abolition of the Branch-office of the Mint.*—On the 1st June, 1907, by Imperial Ordinance No. 197, the Branch-office of the Mint was abolished; and the business managed up to that time at the Branch-office was taken over by the Bank of Japan; and in connection with this change, the Regulations respecting the refining of bullion for coinage and the certification of fineness were revised, and the fees charged for the deposit of silver bullion by the Bank of Japan were reduced.

"*Reduction of the Face-value of Mortgage Debentures.*—The savings debentures which were issued during the war ceased to be issued upon restoration of peace; and as the necessity of absorbing the small capitals held by the lower classes was still recognized, the face-value of the mortgage debentures was reduced from twenty *yen* to ten *yen* with the object of effecting such absorption.

"*Unsecured Loans to Industrial Associations.*—Although at first restrictions were put upon the descriptions of associations, such restrictions were removed after the war in view of the necessity of bringing about the development and prosperity of associations of all descriptions; and pecuniary accommodations were made to such associations as were firmly established and enjoyed high credit.

"*Supply of Funds to Agricultural and Industrial Banks.*—As hitherto the Agricultural and Industrial Banks had, when their funds for advancing loans ran short, no satisfactory means of obtaining the necessary funds, they were made to confer with the Hypothec Bank of Japan, the result of which was that the Agricultural and Industrial Banks were to cooperate in obtaining subscriptions for the mortgage debentures, in return for which the Hypothec Bank was to accommodate them with the proceeds of the debentures and the banks also were to reduce the rate of interest on their loans.

"*Conversion and Consolidation of the Six per cent. Sterling Loans.*—For the conversion and consolidation of the Six per cent. Sterling Loans amounting altogether to £22,000,000 which were raised in London and New York in May and November, 1904, provisions had already been made by Imperial Ordinance No. 241, of 1905; but as there were not a few points needing alteration in the manner of raising a loan and the agreements required therefor so as to suit the prevailing condition of the foreign markets, another Imperial Ordinance (No. 23) was issued for the purpose in March last year, and a five per cent. Sterling Loan of £23,000,000 was raised in London and Paris and with the actual proceeds thereof the whole of the six per cent. loans amounting to £22,000,000 was redeemed on the 10th September of the same year.

"*Succession to and Adjustment of the Debts of the Former Railway Companies.*—The following are the amounts of the debts of the former railway companies taken over by the Government according to the provisions of the Railway Nationalization Law and the Keifu Railway Purchase Law and the amount of such debts already redeemed:—

	Yen
Amount outstanding at the end of 1906	17,755,200
Amount taken over during 1907	24,269,940
Amount redeemed during 1907	15,734,010
Amount outstanding at the end of 1907	26,291,130

"The amount of the five per cent. loan issued for the adjustment and redemption of these debts in accordance with the provision of Art. XV of the Railway Nationalization Law came up to *yen* 13,366,250 (£1,369,493).

"*Payments on Rough Estimates of the Purchase-prices of the Railways.*—As the sums which are according to the provision of Art. XIII of the Railway Purchase Law to be paid to a company at its usual dates for the settlement of accounts until the date of delivery of the public loan bonds for the purchased railway at the rate of five per cent. per annum on the purchase-price could not be paid when the dates for settlement arrived as the purchase-price was not yet definitely decided upon and thereby inflicted great losses upon the shareholders of the company, it was decided to make the payments on rough estimates of the purchase-price in cases only where it was deemed that no objections would be raised respecting the succession to rights and obligations, calculation of the purchase-price, and important matters to be settled by agreement; and accordingly an Imperial Ordinance relative thereto was promulgated in May, 1907. The companies to which the payments on rough estimates were made under this Imperial Ordinance were the Kobu and five others, and the total amount paid was *yen* 14,346,205 (£1,469,898).

"Besides the above sum, payments were made on definite purchase-prices to the Keifu Railway Company and two others, and the amount paid was *yen* 2,367,983 (£242,621).

"*Issue of the Public Works and Railway Loans.*—The estimated amount required to be issued during the Financial Year 1906-7 in accordance with the provisions of the Railway Construction Law, the Public Works Loan Regulations, and the Hokkaido Railway Construction Law was *yen* 16,650,000 (£1,705,943); but eventually it was not issued in that financial year, and in October, 1907, the Imperial Japanese Five per cent. Loan Bonds to the face value of *yen* 17,231,450 (£1,765,517) were issued to be taken up by the Deposit Section of the National Treasury.

"*Increase of the Annual Revenue.*—The results of the revenue have annually been satisfactory and the actual receipts have always shown a large excess over the estimates; above all, the receipts from the taxes and duties have since the restoration of peace shown a marked natural increase every year although there has been no imposition of new taxes or rise in the rate of taxation, and has thereby proved the great power of the nation to bear taxation. Upon comparing the actual revenue for the Financial Year 1907-8 with that for the one preceding, we find that the taxes and duties have increased by *yen* 31,000,000 (3,176,230) or 80 per cent., receipts from Public undertakings and State property by *yen* 7,000,000 (£717,213) or 190 per cent., and the total ordinary revenue by *yen* 67,000,000 (£6,864,754) or 190 per cent.

"Upon comparing the actual revenue for the Financial Year 1907-8 with the estimates, we find an increase of *yen* 46,000,000 (£4,713,115) in the taxes and duties, of which the

increase was 170 per cent. in the income tax, 180 per cent. in the *sake* tax, 390 per cent. in the soy tax, 210 per cent. in the textiles consumption tax, and 380 per cent. in the Customs duties.

"*A Brief Account of the Economic Condition.*—The economic world in 1907 felt the reaction from the mania for enterprises which suddenly arose after the war, and the market remained constantly in a depressed condition on account of the heavy fall in stocks, the panic in America, and the depreciation of silver. However, although the bubble companies which were projected when the stocks commanded high prices had either to be given up or to be dissolved upon the stocks falling heavily, those new companies which had been established on a firm basis and concerned in enterprises of profitable character commenced business and prospered. Above all, in spite of the depressed state of the central money market, the resources of the agricultural classes in the provinces increased owing to the success of the silk industry and the rice crop; there was also a marked increase in the bank deposits and postal savings; the aggregate capital of newly-established or enlarged companies amounted to *yen* 520,000,000 (£53,278,689), of which *yen* 200,000,000 (£20,491,803) was paid up; and with the establishment of new companies there was naturally an increase of products of all kinds and the export trade, notwithstanding the various obstacles which it encountered, still continued to increase, which must be deemed to be the result of this increased production.

"*Amount of Issue of Convertible Notes.*—The amount of convertible notes issued during 1907 exceeded *yen* 310,000,000 (£31,762,295) in every month except April and May when it was *yen* 299,000,000 (£30,635,246) and *yen* 294,000,000 (£30,122,951) respectively. The only time previous to that year when the amount of issue exceeded *yen* 300,000,000 (£30,737,704) was December, 1905, when it was *yen* 312,000,000 (£31,967,213), and it was no more than a temporary rise at the end of a year. But in December, 1906, the figures rose suddenly to *yen* 340,000,000 (£34,836,066) and did not fall with the new year; they maintained their high level and reached *yen* 369,984,000 (£37,908,197) in December of that year, which was unprecedently high. This steady increase in the amount of convertible notes issued without any sign of diminution was caused by the great general expansion of our national economy and finance after the war with Russia, the extension of the sphere of circulation of convertible notes to Korea and Manchuria, and increased demand for capital for the purpose of bringing out new enterprises; it was therefore a natural outcome of the development of our economic world.

"*Advances by and Deposits in Banks in Principal Localities.*—Upon looking at the amount of loans advanced by banks in the principal localities of the country during 1907, we find that the advances were smallest in May, and yet even then they stood at *yen* 685,000,000 (£70,184,426), an increase on the same month of the preceding year of *yen* 162,000,000 (£16,598,361). They amounted to *yen* 830,000,000 (£85,040,984) in January, 1907, and fluctuated between *yen* 700,000,000 (£71,721,311) and *yen* 800,000,000 (£81,967,213) throughout the year except in May; and these figures when compared with those for the preceding year which remained between *yen* 500,000,000 (£51,229,508) and *yen* 600,000,000 (£61,475,410), show a marked expansion and testify to the magnitude of the demand for capital consequent upon the general increase of production.

"The amount of deposits during the past year sometimes exceeded *yen* 800,000,000 (£81,967,213) and seldom fell below *yen* 700,000,000 (£71,721,311) except in August, October, and November when it was between that figure and *yen* 600,000,000 (£61,475,410). This was a marked increase on the figures for the preceding year which had fluctuated between *yen* 600,000,000 (£61,475,410) and *yen* 700,000,000 (£71,721,311).

"*Postal Savings.*—The amount of postal savings deposits stood at the beginning of the year 1907 at *yen* 74,000,000 (£7,581,967), after which it increased from February onward by from one to three million *yen* per month until, at the end of the year, it reached the enormous figure of *yen* 91,000,000 (£9,323,770), which is an increase of about *yen* 23,000,000 (£2,356,557) on the figure at the end of the preceding year and is three times the amount just prior to the late war, which was only *yen* 30,000,000 (£3,073,770). This remarkable increase of postal savings must be mainly attributed to the progress of the general national economy, although there are at the same time such special causes of the increase as numerous deposits of the pecuniary rewards granted after the late war and the general adoption of the book-transfer savings deposit system.

"*Amount of Bills Cleared.*—The total amount of bills cleared during 1907 in Tokyo, and five other great cities of the Empire was *yen* 7,483,000,000 (£766,700,820), which, when compared with the amount for the preceding year which was *yen* 7,124,000,000 (£729,918,033), shows an increase of *yen* 359,000,000 (36,782,787). Although this increase is certainly unprecedented in volume, it cannot be called great when it is compared with the rate of increase during the past years; indeed the rate of increase would appear to have fallen during 1907. This reduction in the rate of increase is due to a reaction against the great activity of speculative enterprises which had been going on since the preceding year, whereby the economic world lost its normal tone with the result that a slight shrinkage took place in the circulation of bills. However, the fact that, in the face of the various causes that were at work hampering the development of credit transactions, the clearances should maintain their tendency to increase, affords an evidence of the firmness of the basis of our economic world.

"*Prices of Securities.*—Throughout the year 1906 the circulation of money remained generally slack and as, at the same time, the nationalization of railways and amalgamation and increase of capital of private companies followed one another in rapid succession, securities of all kinds were quoted at unprecedentedly high prices; but the reaction came in the following year, and the stock market became extremely quiet, while the securities began to fall from March onward and up to the end of the year betrayed no sign of recovery therefrom.

"*Prices, Wages, and Rates of Interest.*—The prices have, in spite of slight fluctuations from time to time, maintained on the whole their tendency to rise every year. Thus, taking the average price of the principal commodities in October, 1900, as 100, we find the average price at the end of 1906 to be 123.75; and with the new year it rose still higher and stood in May at 127.78. Although in June and July there was a fall in the prices of raw silk, copper, barley, and a few other commodities, they all rose in August, from which month up to the end of the year the average price always fluctuated between 128.12 and 133.61.

"If the average of the wages in October, 1900, be taken as 100, during the years 1904-5 the average sometimes fell as low as 92.7 and rose at other times to 113.5 and was constantly fluctuating. These fluctuations, however, ceased upon restoration of order and the wages showed generally an upward tendency. Thus, at the end of 1906 the index number was 120.6, and during the first half of the following year it was slightly over 120 and stood at 126 in July. Towards the close of the year it rose still further and was as high as 137.7.

"The market rate of interest in August, 1905, was 3.08 *sen*, and then gradually fell until it was 2.16 *sen* at the end of the following year. In 1907 it still fluctuated between 2.60 and 2.70 *sen*, but rose at the end of year to 2.79 *sen*. The Bank of Japan rate of interest was lowered twice in 1906 and stood in May of that year at 1.8 *sen*, which rate was maintained up to November of the following year and was raised to 1.9 *sen* in December.

"*Crops of Rice, Barley, Wheat, and Rye.*—As the weather was favorable, the growth of rice last year was extremely good and the yield of rice was as high as 49,043,000 *koku*, an increase of 5.9 per cent. on the preceding year and of 11.8 per cent. on the normal year.

"The actual yield of barley, wheat, and rye in 1907 was 22,167,400 *koku*, an increase of 8.8 per cent. on the preceding year and of 13.6 per cent. on the normal year.

"*Foreign Trade.*—The total volume of foreign trade in 1907 reached the enormous figure of *yen* 926,000,000 (£94,877,049), an increase of *yen* 84,000,000 (£8,606,557) on the volume in the preceding year which was *yen* 842,000,000 (£86,270,492).

"On taking the exports and imports separately we find that the volume of exports was *yen* 432,000,000 (£44,262,295), an increase of *yen* 9,000,000 (£922,131) or over 2 per cent. on that in the preceding year which was *yen* 423,000,000 (£43,340,164), while the imports amounted to *yen* 494,000,000 (£50,614,754), an increase of *yen* 76,000,000 (£7,786,886) or 18 per cent. on those in the preceding year which came up to *yen* 418,000,000 (£42,827,869). A comparison of the imports and exports shows an excess of the former amounting to *yen* 62,000,000 (£6,352,459). In 1906, after the restoration of peace, the market had recovered and moreover, as the economic world in Europe and America was in a favorable condition, it led to the activity of our export trade; and the long succession of excess of imports over exports which had continued since 1896 was broken and, small as it was, an excess of exports was the result. At the beginning of 1907 it was believed that the same tendency would be continued and that the year would show a more or less excess of exports. But the events belied these expectations. The export trade, it is true, made from the beginning of the year a very favorable progress; but from September the depreciation of silver became more and more accentuated and dealt a heavy blow to our China trade, the depreciation of copper in the latter half of the year seriously affected our export of that metal, and finally the great panic which took place in the United States in October and November resulted in the reduction of the sale of raw silk for export to that country. Thus, from these various causes the export trade in 1907 was, at the season when that trade is usually most prosperous, in an exactly opposite condition and so failed to justify the high expectations that had been formed of it.

"The import trade, on the contrary, was very active. An increase in the importation of industrial raw materials and machinery to keep pace with the development of our industries caused a marked expansion of the volume of our import trade and so upset the balance between imports and exports.

"In short, although our foreign trade in 1907 ended in an excess of imports amounting to *yen* 62,000,000 (£6,352,459), yet while the rate of increase of the imports was high, the exports still showed also an increase, small as it was And taken as a whole, it cannot be doubted that our foreign trade is making steady progress."

THE KUALA LUMPUR ELECTRIC POWER SCHEME

The following is from the *Engineering Review*:—

This scheme is a very good example of how advantage may be taken of the presence of water power to generate electricity for lighting and power. Water is taken from the Gombak River in the State of Selangor in the Federated Malay States and utilized in turbines which drive three-phase alternators generating at 6,600 volts. Electric energy is then transmitted over a distance of about ten miles to the State Capital, Kuala Lumpur, where it is transformed down at a sub-station by means of motor generators to a continuous current three-wire distribution with 440 volts across the outer wires. In addition to this distribution three-phase current at 400 volts and 40 periodicity is used in the Government railway workshops in the city. The estimated minimum flow of water when the scheme was put in hand was 1,400 cubic ft. per minute with a head of 340 ft. The capacity of the plant, which was supplied and erected by the Oerlikon Company, is 1,200 h. p., but half of this is intended as a standby, and additional steam power is available in a case of need.

THE COAL FIELDS OF KYUSHU

The island of Kyushu is one of the most important coal producing and exporting sections of the Japanese empire. The best coal produced in Japan is mined at Hokkaida, but while the Kyushu coal is of an inferior quality, the export from the island is about four times the amount shipped from Hokkaida.

The history of coal mining in Japan dates back to the earliest times and it was not until 1868 that an effort was made to employ modern methods in this industry and several foreign experts were engaged and private enterprise encouraged under their direction. In 1885 the mines of Kyushu were put on a modern working basis. Steam machinery was introduced and so successfully did the operators develop the output that in 1889 a large quantity was exported. In fact during the last 33 years the amount of export increased from an insignificant amount to over 12,000,000 tons and a value of over 4,500,000 yen.

In this regard the following table and comment on the mines of this island covering the statistics for the years 1891-1905 inclusive has been prepared by Mr. W. B. Cunningham, Student Interpreter of the British Embassy at Tokyo:

Year.	Quantity. Tons.
1891-95 (average)	3,742,381
1896	5,019,690
1897	5,180,041
1898	6,696,033
1899	6,721,798
1900	7,429,457
1901	8,945,939
1902	9,701,682
1903	10,088,845
1904	10,723,796
1905	11,542,041

"From this table it will be seen that the output of coal has more than doubled during the 10 years 1896-1905, while the yearly output at present is more than three times the average for the five years 1891-95. The average annual rate of increase for the last 10 years has been about 600,000 tons. The value has also increased very considerably in recent years, having risen from 3,291,226*l.* in 1902 to 4,069,-722*l.* in 1905.

"The total output for the year 1906 is estimated to exceed 13,000,000 tons.

"The principal coalfields in the Island of Kyushu are as follows:—

"(1) The Chiku-ho coalfields, lying in the two provinces of Chikuzen and Buzen. The mines in this district produce more than half the total output of Japan, though the mines themselves are small.

"(2) The Miike mines on the borders of the provinces of Higo and Chikugo. These mines produced in 1905 more than one-seventh of the whole amount produced in Kyushu, and more than three times the amount produced by any other mine in the country, while the output is likely to increase still further during the next two or three years.

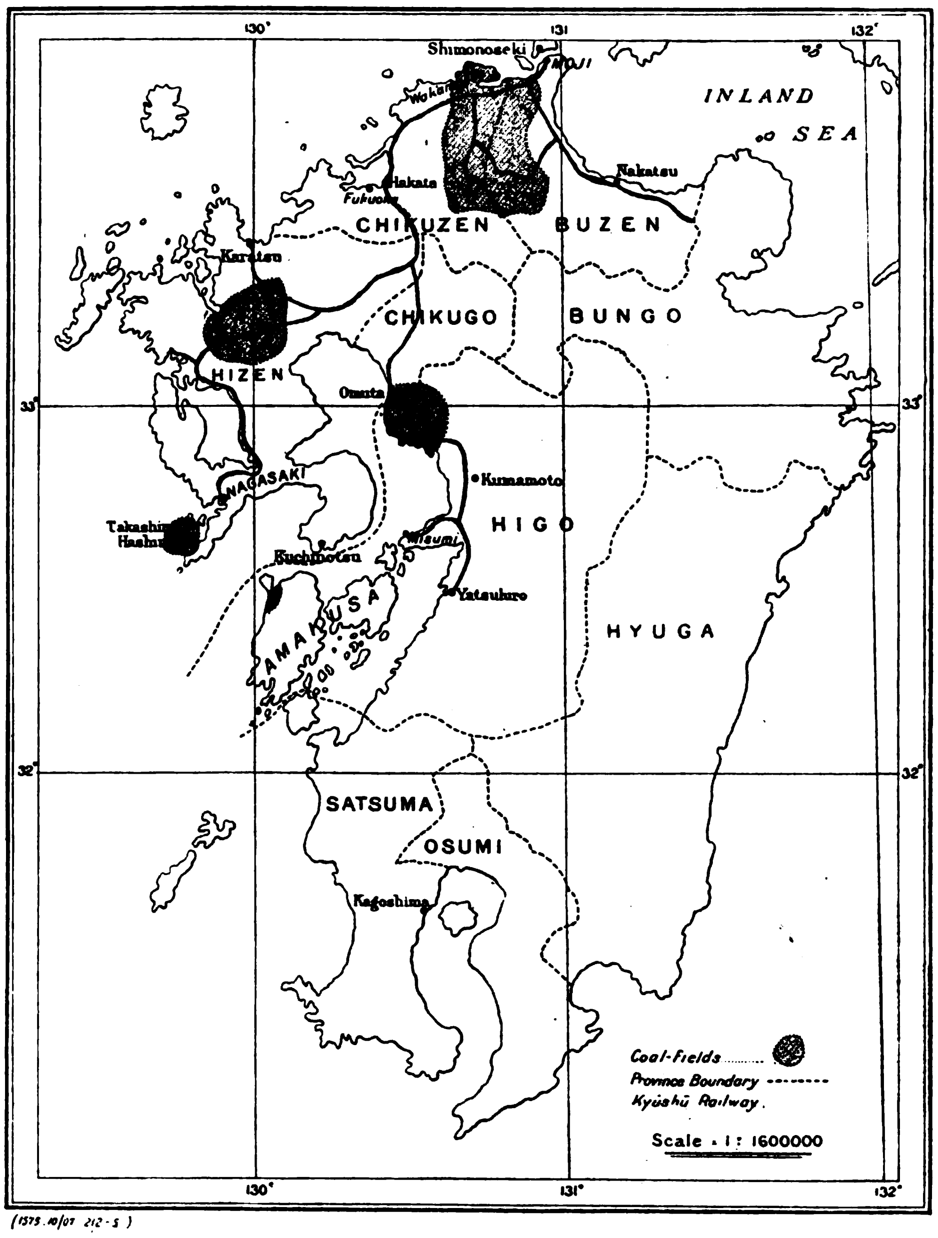
"(3) The Takashima mines on three small islands lying about 7 miles from Nagasaki in the entrance to the harbor. The coal from these islands is the best produced in Japan.

"There are also coalfields covering a considerable area in the province of Hizen, while in the Island of Amakusa, which forms part of the province of Higo, there are several mines producing small quantities of anthracite.

"*The Chiku-ho Coalfields.*—The date of the discovery of coal in this region is not exactly known, but it is certain that some of the existing beds were worked more than two centuries ago, and by the middle of the nineteenth century the coal was being exported in considerable quantities to various markets in the vicinity of the coalfields. During this time the work was confined entirely to surface seams, and it was not till the year 1881, when a steam boiler was first introduced at the Meo mine, that modern methods of extraction were employed.

"Hitherto many small concessions had existed, but recently the policy of the Government has been to discourage this system while encouraging small owners to combine. Meanwhile railway construction was pushed forward in the district to facilitate the transportation

MAP OF KYŪSHŪ



of the coal from the mines to the harbors of Moji and Wakamatsu, whence most of it is exported. Finally, a great impetus was given to the trade by the Japan-China war in 1894, and since that time the industry has steadily increased.

"The Chiku-ho coalfields lie in the two adjoining provinces of Chikuzen and Buzen, both in the Fukuoka prefecture, and embrace the five administrative districts of Onga, Kurate, Kaho, Tagawa and Kasuya. The total area is about 90,120 acres. The mines are scattered over this large area, and altogether there are considerably over 100 in operation. Although the number of mines is large, the mines themselves are small, and they are for the most part owned and worked by private operators or small companies.

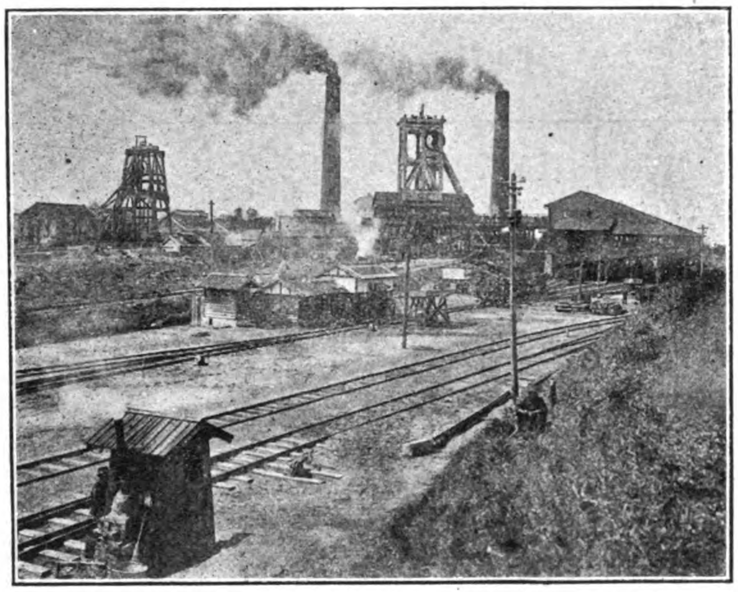
"The seams in this coalfield are numerous, and more than 10 are workable. They vary, however, very considerably in extent and thickness in different districts, and may be divided into upper and lower strata as regards the quality of the coal. The coal obtained from the upper seams is inferior in quality to that obtained from the lower strata, which, however, cover an area five times as great as that covered by the former. On the other hand, the upper seams are more easily worked, though owing to the inferiority of the coal very little is actually extracted.

"The principal seams worked are two in number, being 3 and 5 feet in thickness respectively in the province of Chikuzen, and 4 and 8 feet respectively in the province of Buzen. The slope of the seams varies considerably in different parts; in some places it is as much as 30 or more degrees, and in others as little as 5 or 10 degrees. The average is about 15 or 20 degrees.

"Generally speaking the coal is bituminous and caking, and not of a very good quality. In color it is slightly brownish. It is chiefly used for steam purposes, and is an excellent coal for use in ships. As a rule it is not very suitable for the making of coke, though the

district of Kurate produces a considerable quantity of coal suitable for this purpose. In some places natural coke is found owing to the penetration of volcanic rocks through the coal-bearing strata.

"The best coal is that produced from the 4 and 8-foot seams at the Tagawa mine, be-

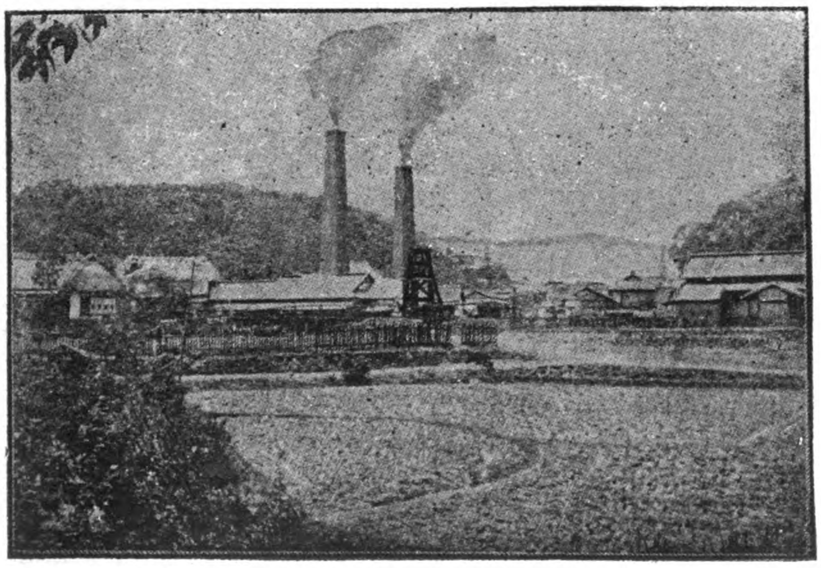


MIYANOHARA PIT, MIIKE MINE

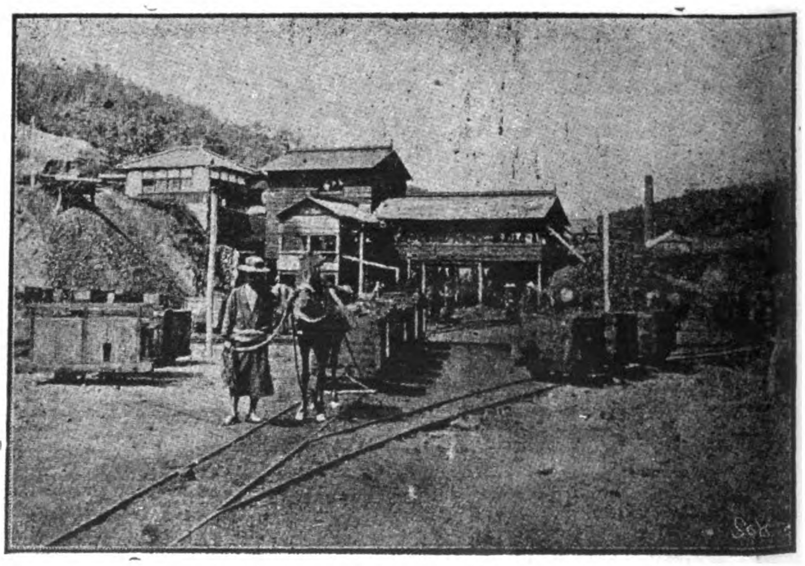
longing to the Mitsui Mining Company. The composition of the coal from the 4-foot seam is as follows:—

	Per Cent.
Water	1.400
Volatile matter	40.830
Coke	53.120
Ash	4.404
Sulphur	0.246

"Its heating value is 7.920 calories and the specific gravity 1.314.



MANNAURA MINE, OHNOURA COLLIERY



SCREENING HOUSE, SUGANUSTA MINE

"The principal mines number 123, though there are numerous others from which the output is comparatively small. The Tagawa and Yamano mines, belonging to the Mitsui Mining Company, and the Namazuta and Shinnyu mines, belonging to the Mitsu Bishi Company, are among the largest and most important.

"The majority of the mines are worked by incline, and there are comparatively few shafts at present in operation. At the Mitsu Bishi Company's Hojo colliery there are two shafts of a depth of 900 feet, and these are the deepest at present in use. The Tagawa mine is worked by incline, but the Mitsui Company are sinking two shafts of a depth of 1,000 feet at Ida, close to the Tagawa mine, which are not yet completed. There are only three other mines worked by shaft in the district.

"Boring is being carried on in many places but as most of the sites suitable for mines are already being worked it is unlikely that the number of mines will increase to any great extent. The estimated capacity of the coal-fields is about 600,000,000 tons; of this quantity about 40,000,000 tons have already been extracted, leaving about 560,000,000 tons to be worked, which at the present rate of extraction will last about 100 years.

"The method of working varies between the longwall and pillar and stall systems. In some mines the longwall system alone is employed, as is the case at Namazuta. At Yamano the pillar and stall system is used, while at Tagawa a modification of the two is in force. The work of cutting the coal is entirely done by hand, the miners working together in groups of four or six. All the mines are well equipped with underground hauling machinery, though ponies are also employed in some cases.

"The number of men employed is about 50,000, the largest mines employing as many as 2,000 or more. The miners work in two shifts of 12 hours each, and work on the average from 9 to 10 hours during that time. Wages are practically the same at all the collieries, averaging about 70 sen (1*s*. 5¼*d*.) a day. In some cases the men are paid partly in kind, when they receive about 40 or 50 sen per day. Women are employed in most of the mines, receiving on an average from 10 to 25 sen less than the men. The number of children employed is small. Workpeople employed outside the mine receive slightly lower wages, the difference varying from 10 to 20 sen in different mines.

"The following table shows the number of principal mines in the five districts of Onga Kurate, Kaho, Tagawa and Kasuya, together with the area mined in each district and the output for the year 1905:—

District.	Number.	Area. Acres.	Output. Tons.
Onga	19	11,177	526,368
Kurate	18	18,046	1,383,966
Kaho	48	32,918	2,060,198
Tagawa	35	26,252	1,772,683
Kasuya	3	1,729	60,875
Total	123	90,122	5,804,090

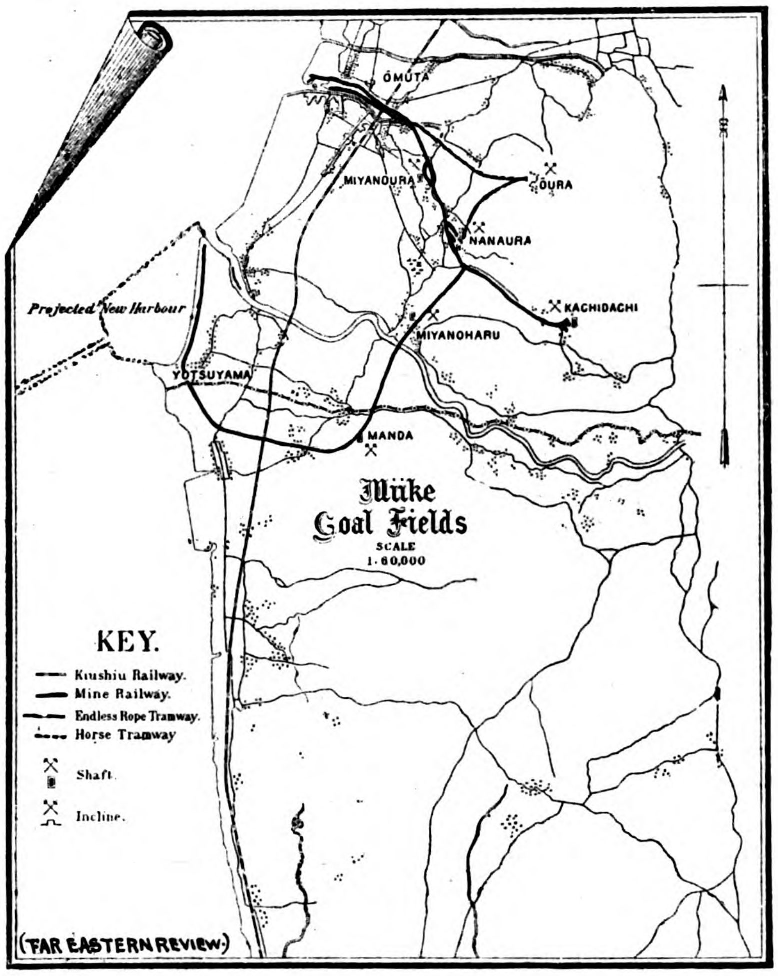
"In 1906 the total output was 6,034,227 tons, being an increase of over 230,000 tons This increase was due to the opening of several new mines during the latter half of the year.

"The output for the year 1906 was made up mainly as follows:—

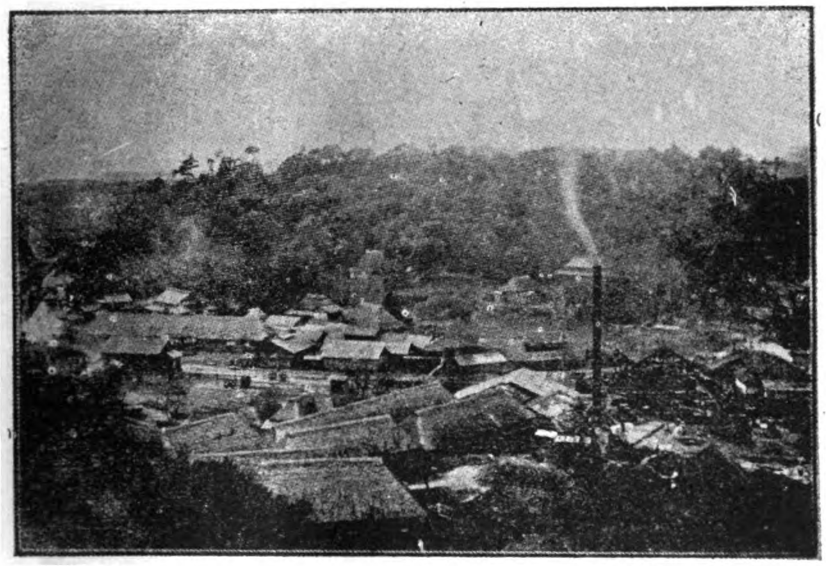
	Quantity Tons.
Lump	1,851,422
Dust	1,425,354
"Kirikomi"	2,566,315
Natural coke	112,432
Anthracite	37,217

"The owners of the coal mines in the Chiku-ho district have amalgamated and formed the Chiku-ho Sekitan Kogyo Kumiai (Chiku-ho Coal Mining Association), with its head office at Wakamatsu. This association undertakes the collection and distribution of the coal produced from the mines belonging to the members.

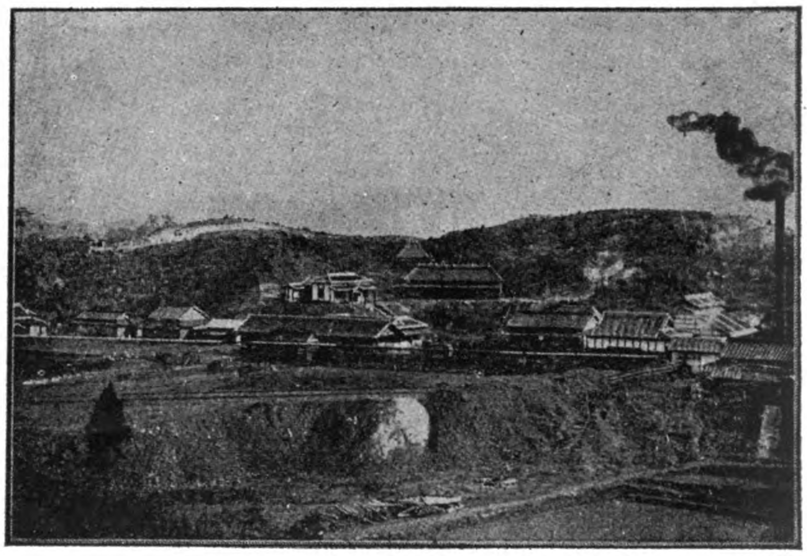
"The greater part of the coal is sent to Wakamatsu and Moji, the Kyushu Railway offering good facilities for its transportation. A considerable quantity is carried from Wakamatsu to Moji by sailing barges with a carrying capa-



city of about 100 tons. The harbor of Wakamatsu cannot admit ships of more than 3,000 tons burden, so that the number of vessels which coal at that port is small. Moji, on the



NO. I MINE, OHTSUJI COLLIERY



OHNOURA MINE

other hand, offers greater facilities, and of late years has come into great prominence as a coaling port for cargo steamers. The large mail steamers continue to coal at Nagasaki owing to the superior anchorage at that port. A considerable quantity of the coal is used as bunker coal, while the remainder is chiefly exported to China, Corea, Singapore, Hong-kong, the Philippines and the Dutch East Indies.

"The following table shows the amount of coal exported from Moji and Wakamatsu during the year 1905:—

Where Exported.	Quantity Tons.
Corea	41,821
China	782,409
Hongkong	440,844
Singapore	13,291
Other countries	20,750
Total	1,299,115

"*The Miike Coalfields.*—These mines were discovered more than four centuries ago, and were among the first to be worked in Japan. About 200 years ago three mines had been opened. In the year 1873 the Japanese Government purchased the mines, and remained in possession till the year 1889, when they were sold to the present owners, the Mitsui Kosan Kwaisha (Mitsu Mining Company), a branch of the well-known Mitsui firm, at a cost of 4,500,000 yen (about 460,000*l.*). At that period only three mines were in operation, but since then three new mines have been opened, modern machinery has been introduced and the work developed to an enormous extent. At the present time the mines are the largest in Japan, and produce on an average 4,000 tons of coal in a working day of 24 hours.

"The concession lies on the borders of the two provinces of Chikugo and Higo on the coast of Shimabara Gulf, being partly in the prefecture of Fukuoka and partly in that of Kumamoto, though the mines at present in operation are all situated in the former. The chief town in the district is Omuta, where the offices of the company are situated, and it has a station on the Kyushu Railway from Moji to Yatsushiro.

"The total area of the concession is about 14,000 acres, the area actually worked being slightly less than 3,000 acres. The coalfields stretch for a distance of about 4 miles inland from the shore of Shimabara Gulf, while from north to south they extend for about 10 miles from Omuta, which occupies the northern end of the field.

"Several seams exist in the Miike coalfields, of which only two are worked. Generally speaking the slope over the whole field averages 13 degrees, though it varies slightly in different localities. The general direction of the slope is from north-west to south-east, but at the Manda mine it is from north to south.

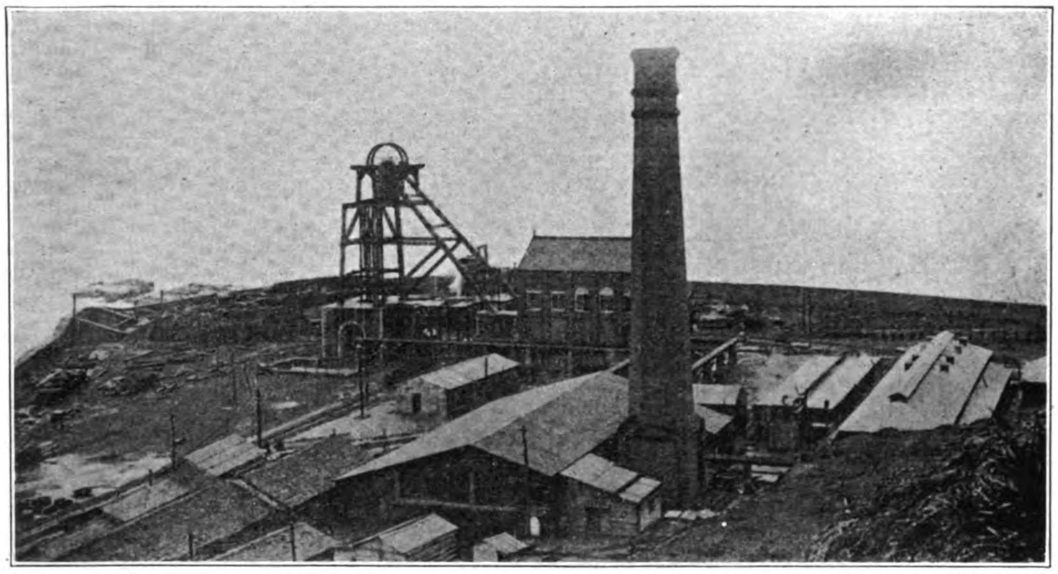
"Of the two principal seams the first is by far the best, being remarkably free from partings and interstratified bands of shale. The coal from this seam is very pure and uniform in character. The thickness of the seam varies between 5 and 25 feet, and averages 8 feet over a large area. The second seam lies at a distance of from 6 to 10 feet below the first, and has an average thickness of 5 feet. The coal from this seam is of inferior quality, being non-caking, and it is only mined to a limited extent for local consumption.

"The coal obtained from the 8-foot seam is bituminous and caking, and is an excellent one for use in boilers, besides being the best coal produced in Japan for the making of coke.

"The following is an analysis of the Miike 8-foot coal made by the Geological Bureau of the Department of Agriculture and Commerce in 1895:—

	Per cent
Carbon	75.19
Hydrogen	5.13

Nitrogen	0.92
Oxygen	8.92
Ash	6.84
Moisture	0.62
Sulphur	2.38



TAKASHIMA MINE

"Its heating value is 8.140 calories and the specific gravity 1.275. The coal is also recognized as a good gas-producer, the average per ton of coal being about 12 cubic feet. The amount of coke produced per ton is about 58 per cent., while the tar averages about 10 per cent. and is of excellent quality.

"As already mentioned the coke made from the coal from the 8-foot seam is the best produced in Japan. It is very hard and dense, and splendidly suited for use in blast furnaces. The analysis of the coke is as follows:—

	Per cent.
Combustible matter	83.88
Ash	15.80
Moisture	0.32

"Coke was first produced at the Miike mines in the year 1892, when four ovens for its production were installed for experimental purposes. Subsequently the success of the venture and the increased demand led to the installation of 12 more ovens in 1900, while in 1902 work was begun on 20 more. These are now in use, and the actual production is about 100 tons a day, necessitating the employment of over 200 men.

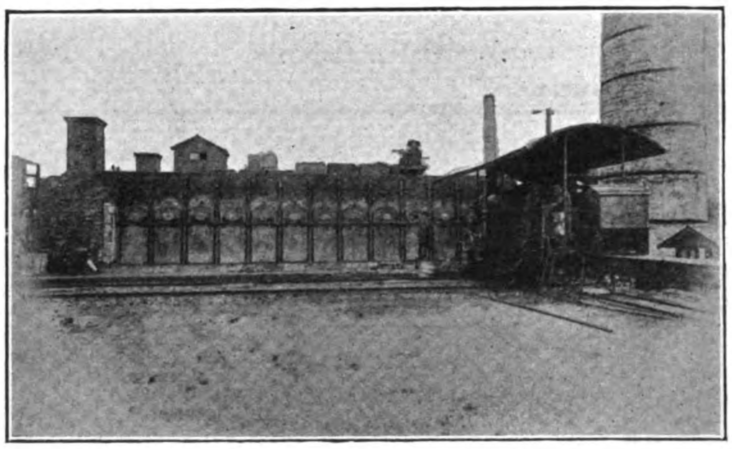
"At present work is being carried on at six places on the coalfield. The depth of the shafts increases from north to south owing to the inclination of the strata, varying from 176 feet at the Miyanoura mine to 896 feet at Manda. Preparations are being made for a new mine still further to the south, the depth of which will probably exceed 1,200 feet. The site has already been chosen, and work is to be begun shortly.

Oura is a mine worked by incline; all the others are worked by shaft. The newest is that at Manda, which was only opened in 1903. There are two shafts, only one of which is at present in operation. The second is expected to be completed in about a year's time. The output from the Manda mine alone is now about 1,100 tons daily, and when the new shaft is opened it is expected that it will exceed 2,000 tons.

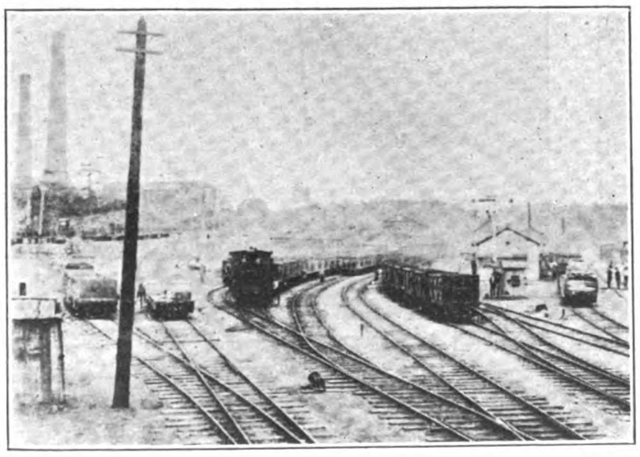
"The following are the names of the different mines, with the date of opening, size and depth of shaft and average daily output:—

Name of Mine.	Date of Opening.	Dimensions of Shaft.	Depth of Shaft.	Average Daily Output
			Feet.	Tons.
Oura (incline) . .	July, 1873. .	10 by 6 feet .	4,820	530
Nanaura . .	June, 1882 .	Diameter 14 feet . . .	237	520
Miyanoura .	August, 1887.	18 by 12 feet.	176	650
Kachidachi .	Feb., 1894. .	18 by 12 feet.	391	950
Miyanohara.	March, 1896 .	Diameter 23 feet . . .	468	850
Manda. . .	March, 1903 .	41 by 12 feet.	896	1,100

"The coal is obtained by the pillar and stall system, the pillars being left 66 feet square, and the roads being about 10 or 12 feet in width. As the mines are worked at present about 30 per cent. of the coal is being extracted. The cutting is almost entirely done by hand, the average amount extracted by one miner in a day being about 2½ tons. This amount is slightly increased in the case of removing pillars. The roof is for the most part hard, and timbering is unnecessary in many places. Where necessary it is sustained by coggings,



COKE OVENS, MIIKE MINE



NANAWA PIT, MIIKE MINE

while steel and bricks are used in the main roads and workings of the mine.

"The greatest difficulty to be contended with is the enormous amount of water that percolates into the mines through the overlying strata. For every ton of coal obtained 12 tons of water are pumped from the mines, and during the rainy season this amount is doubled. The quantity of water to be pumped out increases with the depth, and at the Manda mine the quantity pumped out per ton of coal produced is about 24 tons. The aggregate amount pumped out per minute is about 1,350 cubic feet, or about 5,200 tons in the course of a single day, and nearly half this quantity is from the Manda mine.

"In order to cope with this enormous quantity of water pumps to the number of between 70 and 80 are at work, being operated by steam, electricity or hydraulic power. All the large pumping engines at the pit mouths are of the horizontal compound direct-acting type, fitted with Davey's differential gear.

At the Manda mine there are four of these engines, with a capacity of 40.3 tons per minute lifted 900 feet. They are described as probably the heaviest existing colliery pumping plant in the world.

"At the Miyanohara mine convicts from the prison in the vicinity are employed to the number of about 800. The convicts are kept apart from the ordinary miners and work in a different portion of the mine.

"The following table shows the output from the Miike mines for the years 1897-1906 inclusive:

Year	Output. Tons.
1897	623,444
1898	738,252
1899	708,501
1900	726,205
1901	890,863
1902	952,257
1903	1,097,176
1904	1,252,235
1905	1,311,038
1906	1,482,130

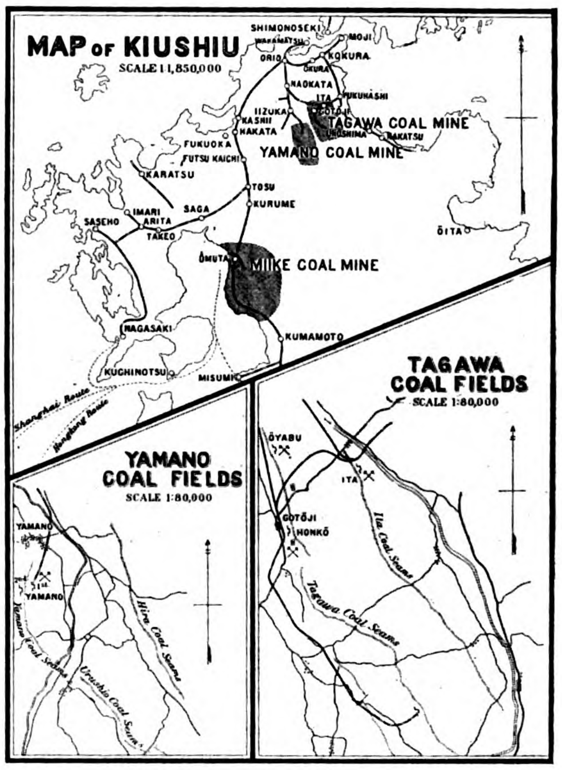
"About 10 per cent. of the coal produced is used in the working of the mines. The greater part of the remainder is conveyed from the pit mouths in the company's own trucks to the loading dock at Yokosu or to the station at Omuta; 16 miles of railway of the gauge ordinarily used in Japan are in operation and connect the mines with the Kyushu Railway from Moji to Yatsushiro.

"At present most of the coal is dumped into barges at the Yokosu dock, and from there conveyed to Kuchinotsu. These barges carry from 50 to 300 tons, and in fair weather can perform the journey of about 35 miles under their own sail in 24 hours. The company also owns tugs for the purpose of towing the barges to Kuchinotsu. The entrance to the dock at Yokosu is kept clear by constant dredging, the sea being very shallow close to the shore.

"The sale of the Miike coal is controlled by the Mitsui Bussan Kwaisha (another branch of the Mitsui firm). This company collects the coal at Kuchinotsu, where it is either sold as bunker coal, or exported in the company's own vessels to Hongkong, India, China, etc.

"The following table shows the amount of coal dealt with at Kuchinotsu during the years 1904-06:—

Year.	Quantity of Coal Shipped.			Total.
	Abroad.	To Places in the Interior.	As Bunker Coal.	
	Tons.	Tons.	Tons.	Tons.
1904........	612.763	45,252	133,031	791,046
1905........	607,609	103,188	191,108	901,905
1906........	518,551	69,256	151,378	759,185



"To ventilate the mines there are five fan-engines at work, discharging from 70,000 to 200,000 cubic feet of air per minute. The mines are very free from firedamp, and open lights are used by the miners, except in a few parts of the Kachidachi mine, where safety lamps have to be employed. The principal roads and workings are all lighted by electricity.

"For the purpose of haulage tramways are in operation on most of the roads. There are also over 300 ponies employed for short distance haulage. Winding machines are installed at the various shafts for the purpose of raising the coal and lowering the men and trucks into the mines.

"Each mine, with the exception of that at Oura, is supplied with its own screening house, fitted with the latest screening apparatus. The output of the Oura mine is brought to the screening house at Nanaura. There is also a washing house, where the small coal is collected from the various mines and washed by means of jig washers.

"A workshop for executing repairs is to be found at each mine, while near Omuta there is a well-equipped workshop employing over 800 men for the execution of larger repairs.

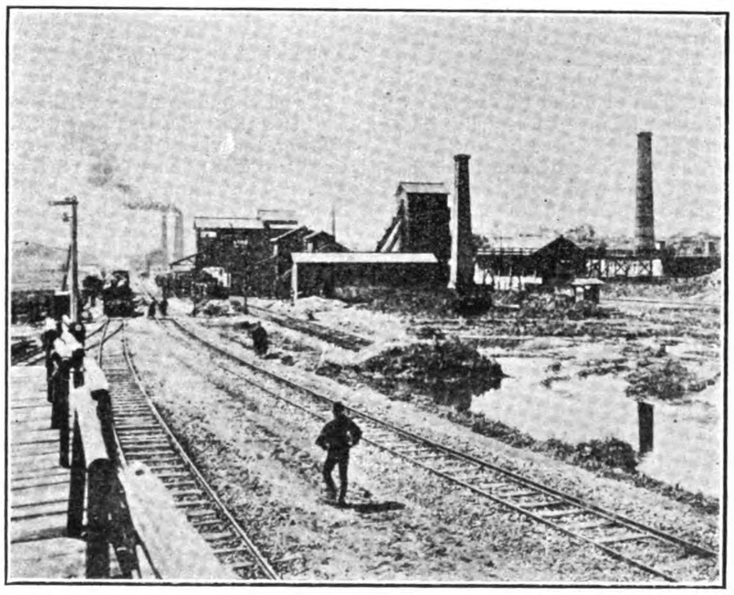
"At Nanaura there is an electric generating station, but owing to the growth of the mines it has been found to be insufficient for the requirements, and a new station is being erected at Yotsuyama. This station, which will very shortly be completed, will have an aggregate electric energy af 1,000 kilowatts.

"The number of persons employed in the mines is about 3,200, of whom over 2,300 are miners and timbermen and the remainder carriers. About 40 per cent. of those employed in the mines are women. The miners work in two shifts of 12 hours each. Over 2,000 persons are employed above ground at the pit mouths, while the number of engineers and firemen is about 500. Each mine has a manager and a superintending engineer, who are responsible to the general manager and chief engineer respectively.

The average daily wages are as follows:—

	Average Daily Wages Paid to— Men.	Women.
	Sen.	Sen.
Miners	42	31
Outside workers	35	19

NOTE.—100 sen=1 yen=2*s*. 0½*d*. (approximately).



WASHING PLANT, MIIKE MINE

"The Mitsui Company have erected dwellings at each of the mines for the benefit of the miners, the rent paid for the houses being merely nominal. There is also a system by which rice and other articles are sold to the employés of the company at fixed prices, varying according to the length of time during which they have been employed. There are also hospitals and schools for the exclusive use of the miners and their families.

"In order to avoid the transportation of the coal to Kuchinotsu the Mitsui Company are building a new harbor and dock near Yotsuyama. Work was begun in June, 1902, and it is expected that it will be completed by the end of June, 1908.

"The harbor is to be approached by a channel 2,000 yards long and 200 yards wide, having a depth of 18 feet at low tide. A wet dock is being built within the harbor, which will have

a depth of 26 feet at high neap tide. The area of the outer harbor is about 250 acres and that of the dock about 23 acres. There is also to be a dock for barges. On the land side of the dock a quay has been constructed capable of accommodating three vessels of 7,000 tons simultaneously. A railway connecting with the Manda line is to be constructed, and three coal-loading hoists are to be installed on the quay wall. By this means the coal will be loaded directly into the steamers, thus avoiding much breakage and loss of time. It is calculated that these loading hoists will be capable of working 7,000 tons of coal in the course of 24 hours. The completion of this harbor is likely to have a disastrous effect on the importance of Kuchinotsu as a coaling port. Vessels which now call at the port for coal will in future proceed to the new harbor at Miike, and the extra time spent in making the journey will be amply repaid by the increased rapidity and ease of coaling.

"*The Takashima Coalfields.*—Though it is not certain at what date coal was first mined in the Island of Takashima, it is probable that small quantities were produced more than two centuries ago. Shortly after the beginning of the nineteenth century, however, the mines came into the possession of the Lord of Hizen, who, in 1867, associated himself with a Mr. Glover, an Englishman, and under his direction a shaft was sunk at Takashima and European machinery procured. This shaft was about 130 feet in depth and a seam of 8 feet was worked. In 1881 the concession was acquired by the Mitsu Bishi Company, the present owners. New machinery was introduced and modern methods of extraction employed, with the result that the output greatly increased, at one time exceeding a total of 1,200 tons a day. Since then, however, the work has declined considerably, and the present output at Takashima is only about 300 tons per day.

"The mines on the Island of Hashima were acquired by the Mitsu Bishi Company in the year 1890, and the output at present is about 350 tons a day.

"The mines are situated on the three Islands of Takashima, Hashima and Nakanoshima, lying about 7 miles from Nagasaki at the entrance to the harbor. The surface area of these islands, of which Takashima is by far the largest, is quite small. Hashima lies about 2½ miles from the former. The work on the Island of Nakanoshima has been abandoned.

"The mines themselves extend under the sea, and cover an area of about 2,775 acres. They are situated in the province of Hizen, and are included in the prefecture of Nagasaki.

"The seams, of which there are 13 in all, are found in the tertiary system, the overlying strata being principally composed of sand, shale, clay and slate. Generally speaking the seams slope from north-north-east to south-south-west, the dip varying from 15 to 13 degrees at the northern end, while at the southern end it in some places exceeds 50 degrees. Faults are frequently met with in the strata, but if the displacement of the seams is not too great a tunnel is to be driven from one mine to the other, thus uniting the two islands.

"The principal workable seams are five in number. The first measures 8 feet, and was the one originally worked, though the work has now been abandoned. The second is 12 feet in thickness, but has three partings. The third is 5 feet in thickness and is likewise not worked. The fourth averages 18 feet in thickness, and being quite free from partings is the one most worked. The fifth seam measures 5 feet, but being of inferior quality is only mined to a limited extent for use as boiler coal at the mines.

"The coal produced from the Takashima 8-foot seam is the best in Japan. It is, like most of the coal produced in the country, bituminous and excellent for use in steamships. It is also suitable for the production of coke. It is, however, mostly used to supply the mail steamers calling at the port of Nagasaki, though a little is used in the country or exported to Hongkong, China, etc.

"The composition of the coal from the 18-foot seam is as follows:—

	Per cent.
Moisture	1.10
Volatile matter	36.95
Ash	2.01
Coke	59.84
Sulphur	0.10

"The specific gravity of this coal is 1.253.

"At Takashima there are two shafts. No. 1 shaft reaches a depth of 555 feet, and measures 14 by 10 feet. This shaft reaches at the bottom the 18-foot seam. No. 2 shaft (which, owing to an explosion in March, 1906, has been closed, but is to be re-opened shortly) reaches the lowest 5-foot seam and has a depth of 637 feet, its dimensions being 17 by 10 feet.

"At Hashima there are three shafts, only two of which are now worked. The original shaft, sunk in 1887, had to be abandoned 10 years later owing to an outbreak of fire, and has not been re-opened. The second shaft reaches a depth of about 900 feet.

"From the foot of the shafts the workings extend underneath the sea, and owing to the steepness of the beds a depth of 1,600 feet below sea level is reached in some places. In spite of this fact very little water penetrates into the mines, the quantity pumped out being about 60 cubic feet per minute at Takashima and slightly over 80 cubic feet at Hashima.

"As a rule the mines are fairly free from fire-damp, and the main roads are all lighted by electricity, while in places where this is impracticable the miners are provided with safety lamps.

"At Takashima there are two ventilating fans at work, with diameters of 18 and 24 feet respectively, the quantity of air taken in being 67,000 cubic feet per minute. At Hashima similar fan-engines are at work, the quantity of air taken in being nearly double.

"One of the greatest difficulties to be contended with at Takashima is the absence of fresh water on the island. Sea water has to be used instead to feed the boilers, and salt is being produced from the water used for this purpose, the production from the two islands exceeding 5 tons per day.

"The coal is worked on the pillar and stall system, the pillars being about 60 feet square, and the roads 10 or 12 feet in width. The work of cutting the coal is done entirely by hand, as the softness of the coal renders the use of coal-cutting machinery unnecessary. The roof is strong in most places, but where necessary it is supported by coggings.

"The mines are well equipped with underground hauling engines worked by steam, and winding engines are installed at the pit-mouths for hoisting the coal. These engines are all of British make and of the latest type. The winding engines hoist one cage while lowering another, each cage having a single deck and space for two tubs.

"The number of workpeople employed at Takashima is 635, of whom 528 are miners. At Hashima the numbers are 824 and 738 respectively. Women and children are not employed underground, though they are engaged in sorting the coal and in other ways at the pit mouths.

"The average quantity of coal cut per man in a day is 1¼ tons. The miners are paid by the number of tubs they cut, the price varying from 35 to 15 sen according to the hardness or otherwise of the working face. The average wage of a miner is from 75 to 80 sen per day. Outside workpeople receive from 50 to 55 sen a day. Women are only employed above ground, receiving from 18 to 28 sen a day.

"The men work in two shifts of 12 hours each, while the outside workers have a day of 10 hours

"Schools and hospitals have been erected by the company for the benefit of the miners, and practically the whole population of the islands (about 2,000 at Takashima and 3,000 at Hashima) is dependent on the company, as the soil is not fertile. A small steamer provides daily communication with Nagasaki.

"All the coal produced from these mines is loaded into large junks, carrying about 100 or 150 tons each. These proceed under their own sail to Nagasaki, whence the coal is loaded direct into the steamers or exported to the various consumers. The selling price of large coal varies between 9 and 10 yen per ton, and that of small coal between 6½ and 8 yen per ton

"The following table shows the output of the Takashima mines for the four years 1903-06:—

Year.	Quantity.
	Tons.
1903	159,259
1904	231,429
1905	205,658
1906	147,342

"The great falling-off in the production for the year 1906 may be attributed to the closing of shaft No. 2 at Takashima owing to an explosion in March of that year.

KUCHINUTSU HARBOR:—PORT FOR MIIKE MINES

"In addition to the mines described in detail above, there are also coalfields covering a considerable area in the province of Hizen, of which Takashima appears to be an outlying member. The total area exceeds 20,000 acres, and the mines are situated in various parts of this district. None of them are very large, but several are of considerable importance, notably those of Yoshinotani and Ochi, the latter belonging to the Mitsu Bishi Company and producing an excellent coal. Yoshinotani has the largest annual production, though there are no mines in the district with an output exceeding 200,000 tons per annum. The port of the district is Karatsu, whence most of the coal is exported. The conditions of labor, wages, etc., are generally the same as at the collieries in the other districts of Kyushu.

"In 1905 the total output of the mines in this district was slightly over 1,200,000 tons. The following table shows the output of the principal mines during the year 1903-06 inclusive:—

Year.	Quantity.
	Tons.
1903	705,666
1904	756,791
1905	830,398
1906	831,406

"In the Island of Amakusa there are several mines producing small quantities of anthracite. They lie on the north-east coast, and cover an area of about 1,000 acres. The principal mine is at Shiki. The area of the concession is about 600 acres, and the colliery employs over 200 persons. The output during the three years 1903-05 was as follows:—

Year	Quantity.
	Tons.
1903	16,099
1904	17,389
1906	14,927

JAPAN'S COAL OUTPUT

The total output of coal in Japan, says the *Moji Shimpo*, during 1907 was 13,716,488 tons, of which 11,126,438 tons, or nearly 81 per cent, were mined in Kyushu. The following figures show the output in tons of the Kyushu collieries for the past nine years:—

1907	11,126,438
1906	10,302,603
1905	9,370,481
1904	8,403,465
1903	7,280,552
1902	7,588,332
1901	7,200,545
1900	6,115,366
1899	5,626,411

There are ninety collieries in Kyushu which each produced more than 30,000 tons last year; 47 from 10,000 to 30,000 tons each; 28 from 5,000 to 10,000 tons; and 308 which produced less than 5,000 tons each. The Kyushu collieries are distributed as follows:—

Fukuoka-ken	208
Saga-ken	133
Kumamototo-ken	1
Nagasaki-ken	142
Okinawa-ken	2

There are no coal mines in Miyasaki-ken, Oita-ken, and Kagoshima-ken. The total area of the collieries in Kyushu is 277,218,402 tsubo, of which 19,621,200 tsubo are in Nagasaki-ken.

PHILIPPINE FREE TRADE PETITION

A petition signed by over 200,000 asking the people of the United States for free trade between the islands and America was made the subject for a demonstration on the Luneta, Manila, July 4th, when many signatures were secured publicly, before the document was transmitted to Washington. Mr. Harold M. Pitt, manager of the Los Baños Improvement Co., who has been to the fore in the campaign for free trade, and Daniel O'Connell, financial secretary of the Manila Merchants' Association, took the initiative in this movement on this occasion. The petition reads in part as follows:

"Since the 13th day of August, 1898, the affairs, economic and political, of the Philippine people, have been under absolute control of the government of the United States.

"We recognize the fact that, during the ten years this relation has continued, much has been accomplished for the advancement and uplifting of this race and the development of industry in these Islands.

"We are not insensible to the benefits of the great public school system; nor of the fiscal system; nor of the system of railroads and public improvements that have been inaugurated by and with the energy, fidelity and genius of the American people. Yet, while the United States has done so much for us, so much that will make for the security and stability of prosperity in the future, there is one thing that could have been done which, if done, would have prevented much suffering and disaster that has overtaken a large body of our agricultural population. We refer to the removal of the tariff barriers of the United States from products of the Philippine Islands.

"While sections of the Archipelago that yield hemp, copra and rice have continued during recent years under a fair measure of prosperity, the country has lacked the stimulus of capital, and the produces of many articles, notably sugar, have labored under conditions that precluded success; and during the present year the low prices that have prevailed for hemp and copra, together with a partial failure of the rice crop, have prostrated industry and precipitated an acute economic crisis.

"We earnestly direct your attention to these facts: That while it is true that labor in our fields is poorly paid, there is good reason why it cannot be better paid. The same law that applies to and controls other industries applies also to the agricultural industry here. If the cotton trade languishes, the wages of your mill operatives are reduced; as business improves wages are advanced; and it would be just as reasonable to tell our hemp, sugar and tobacco planters that if their business is not paying them, they must turn to wheat growing or the raising of cotton, as it would be to tell your cotton mill owners or your cotton planters that when the cotton business is depressed they should turn to making iron and steel, or to raising sugar beets.

"We do not charge that the government of the United States is responsible for the unhappy conditions of industry in these Islands, but we do maintain that as territory belonging to, controlled by and dependent upon it, a moral obligation is imposed that may not be justly disregarded, to assist in every possible way the material interests of the people here.

"We have been made to witness the splendid development and evident prosperity of Porto Rico since that Island has enjoyed the advantages of free trade with the United States, and we naturally feel that if it were justice to so legislate in the case of Porto Rico then full justice has not been done the Philippines.

"We see that Porto Rico's exports increased under free trade with the United States, from $8,583,987 in 1901, to $26,959,505 in 1907; and that her imports from the same period increased from $9,366,230 to $29,267,172, a total increase in her external commerce in six years of $38,267,480. And of the imports into Porto Rico in 1907 the United States contributed nearly $26,000,000, or 88 per cent, while of the exports they took $22,000,000, 80 per cent. And those purchases from Porto Rico were entirely of articles that the United States would have been under the necessity of importing from foreign countries had they not been obtained in Porto Rico, and that, too, without receving such advantages in return as they received in Porto Rico for their own products.

"We believe that we can pledge to you for the Philippines an equal return in commerce, in proportion to population, if you will give to us the same legislation that was enacted in the case of Porto Rico, and where the million Porto Ricans purchase twenty-five million dollars' worth of goods in the United States, eight million Filipinos will, within ten years from the enactment of a free trade law, be purchasing two hundred million dollars' worth.

"We, therefore, earnestly petition the people of the United States to influence the United States Congress to enact legislation that will give to the Philippine Islands equal trade advantages with Porto Rico, that the economic troubles with which we are afflicted may be removed, and these Islands once more be brought to a condition of prosperity and happiness."

* MINING IN JAVA

Mr. J. W. Stewart, British Consul, reports for 1907:—

Tin.—Shipments of Government tin from the Island of Banka were on a slightly larger scale than in 1906, 10,945 tons being exported in 1907 against 9,807 tons in the previous year.

The quantity of private tin shipped was 2,432 tons as compared with 1,935 tons in 1906.

AUCTIONS OF BILLITON TIN, HELD AT BATAVIA DURING THE YEARS 1906-07

DATE OF TENDER	Quantity in tons.	Average Price Per ton.
1906		
		£ s. d.
January 3	123	156 8 10
February 7	123	161 9 6
March 7	123	158 0 7
April 4	123	165 11 7
May 2	181	176 4 0
June 6	184	174 4 11
July 4	184	172 8 6
August 8	184	177 2 2
September 5	187	178 5 2
October 3	184	187 19 10
November 7	184	190 2 11
December 5	184	190 18 0
1907		
		£ s. d.
January 8	184	184 0 9
February 6	184	186 0 10
March 6	186	186 0 10
April 3	184	178 0 2
May 8	186	181 6 1
June 5	186	176 7 0
July 3	186	171 12 3
August 7	184	171 10 1
September 4	184	161 0 8
October 2	186	152 18 5
November 6	186	186 17 9
December 4	186	128 10 19

PETROLEUM.—The production of Java oil amounted to 1,655,331 cases as against 1,994,689 cases in 1906.

Mr. du Pon, British Vice-Consul at Balik Pappan, reports:—

The industry of the place is oil (petroleum) and its products, which is now carried on by the Bataafsche Petroleum Maatschappy, this company being the result of the recent amalgamation of the Royal Dutch Oil Company and the Nederlandsch Indische Industrie en Handelmaatschappy.

The new company is now under Dutch administration, with their head-quarters at the Hague.

The large oil refinery here deals with about 450,000 tons of crude oil per annum.

GOLD.—Two new gold mines in Borneo were floated during 1907—Sintoeroe and Moewang. The results obtained from both of these were unsatisfactory owing to many troubles from which Bornean gold mines are even less exempt than others in their early days. Towards the end of the year, however, much richer ore was met with, and the management look forward confidently to better results.

The Redjang Lebong mine now ranks as the richest mine for its size in the world—that is, there are no other mines crushing as much as 5,000 tons of ore per month of a value of more than 1 oz. of gold per ton. It has also the unenviable distinction of being one of the most expensively worked mines of its size in the world. Notwithstanding the privileges it enjoys of having waterpower and very cheap labor, the treatment of its ore costs £1 16s. per ton, while the Transvaal mines generally, though denied these privileges, have reduced their expenses to below 18s. per ton.

COPPER.—There is a Dutch company prospecting for copper in Timor with apparent success, as samples containing a good percentage of copper have been received for analysis.

* *Mining Journal.*

THE DEVELOPMENT OF SHIPYARDS AND SHIP-BUILDING INDUSTRY OF NIPPON

*By Hirata Takatoki.

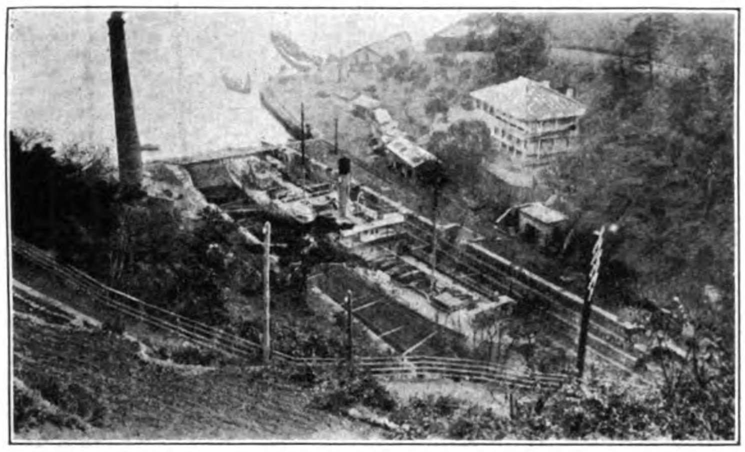
The growth of the mercantile marine of the world since 1900 is not remarkable,—it is almost unbelievable, it is astounding.

Great Britain in 1900 built 696 ships of the aggregate tonnage of 1,374,585. In the same year the United States built 154 vessels, the total tonnage of which amounted to 207,345. Germany built 98 vessels of the aggregate tonnage of 227,898. France 55 ships of 69,933 tonnage. Nippon in the same year, built 101 vessels of a total tonnage of 21,766.

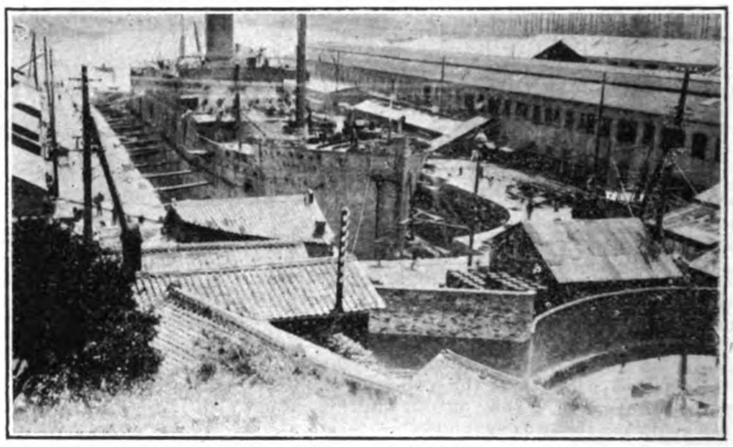
The ratio of the increase of the ship-building industry is a little different; it is about 500 per cent.

This, then, is the place to which the ship-building industry of Nippon has advanced. Beside it, the scandalous speed at which the taxation of New York City property is said to be climbing heavenward looks like a snail's pace.

There are many reasons for this stupendous growth in the ship-building enterprises of the eastward advance of Russia over the Siberian snows? What about the ever eastward march of England through Egypt, Persia, India, Burmah, Australia, and out upon the South China Sea at Hongkong? What also about the French crowding into the Empire of Cochin-China and dominating the treasure house of the South China? From the West and from the East, therefore, the world's center seems to be converging on what has been known as the Far East.



THE NO. 2 DOCK OF MITSU BISHI CO., NAGASAKI



THE NO. 1 DOCK OF THE MITSU BISHI CO.

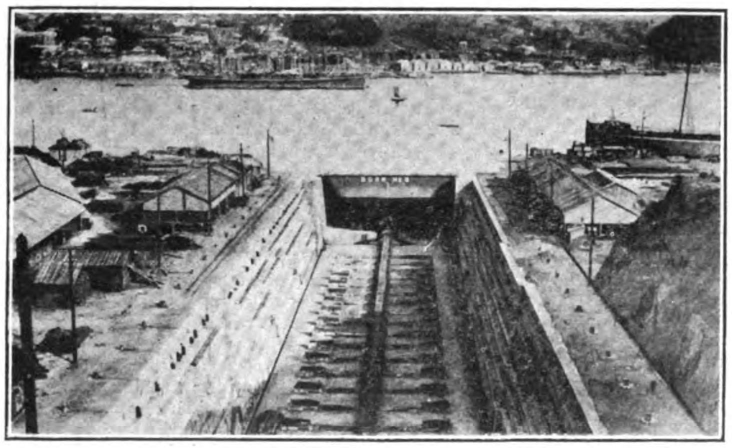
In 1907, the number of new vessels built by Great Britain and her colonies aggregated 2,014, amounting in tonnage to 1,845,305 tons. The United States built 177 vessels of the aggregate tonnage of 454,713. Germany 507 vessels, with a total tonnage of 321,372, and Nippon 148, with a total tonnage of 127,521. France 52 vessels, with an aggregate tonnage of 113,345.

The growth since 1900, in the case of Great Britain, shows the increase in vessels of 1,318 and in tonnage of 570,720. The United States, in 1907, shows the increase in the number of ships built over those of 1900 by 23, and in tonnage 247,368. As for Nippon, she built in 1907 only forty more ships than in 1900, but mark the difference in the tonnage of the ships she built. She built 105,255 tons more than in 1900. Here is a difference.

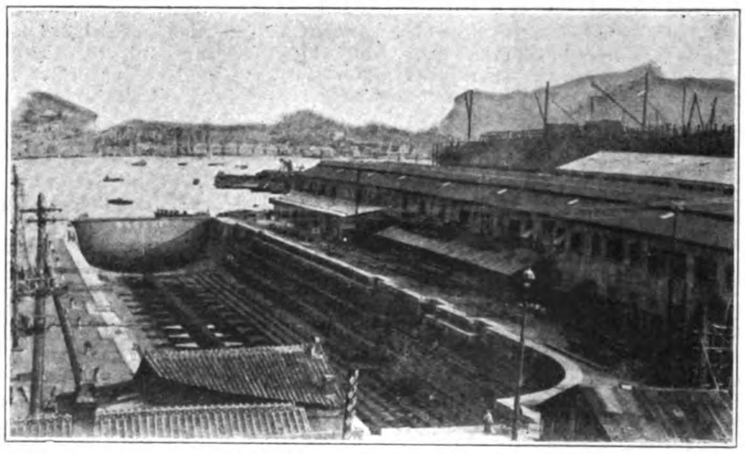
world. Taking the more important few, let us say first, that the center of the world's civilization in its ever Westward shifting, has actually sailed out of the Mediterranean, sailed over the Atlantic, and looks very much as if it has made the United States its temporary home. From the restlesness of it, also with its face toward the West, one is tempted to say that it will be swimming across the Pacific within a very short time. This shifting of the world's center of civilization, commerce, finance and political interests, naturally carried with it a tremendous activity along the development of resources which had remained untouched, and the development of resources in virgin territory forces, willy-nilly, the increase of transportation facilities. The constructino of railways has brought about a new era

In the period that straddled the years of grace 1904 and 1905, in which history was made at a rapid pace from Port Arthur to Mukden, from the Yellow Sea to the Strait of Korea,—one Eastern power, for the first time, joined the household of great powers. The rise of Nippon and the wakening of China, the coming of the continent-island of Australia to her own, made the extreme East the center of the world's stage.

And the birth of the New East brought the world's greatest ocean into play, and for the first time in the history of mankind. Small wonder, therefore, that this period marks a new era in the history of the ship-building and mercantile marine of the world in general, and of Nippon in particular.



DOCK NO. 3 MITSU BISHI CO.



THE NO. 1 DOCK OF THE MITSU BISHI CO.

In other words, in terms of tonnage, Nippon built in 1907 about five times as much as she did in the opening year of the twentieth century,—five times.

The rise in living expenditure is causing a great deal of comment. But after all, it has only risen about 30 per cent at the most, within the seven years under review.

for land transportation,—and a more striking, if not newer, period for water transportation.

With the shifting of the world's centers Westward, we seem to be tiptoeing now on the threshold of what might be called the Pacific era. The glories of the Atlantic are those of a sunset glow, and already a new sun is above the horizon of the new East. The course of the star of the empire of the school-boy is merely telling us a half of the story, for what of the

A number of minor causes there are, also, The policy of great powers, and specially of the Nippon government, is to encourage the creation of merchant marine as an auxiliary to the navy. Subsidy, bounty, mail contracts, and every manner of government assistance, have entered into the up-building of the ship-building and merchant marine enterprises.

Another cause: The passenger traffic of the steamship companies all over the world have

*In *The Pacific Era.*

abandoned the method of competing one against another, through low prices. Competition, especially in over-sea passenger transportation business, is to-day carried on almost entirely through superior accommodations, by means of superior construction of ships, through the attainment of great speed, through the elegance and furnishings of the cabins also, and this method of competition for trade gave a tremendous impetus to the construction of more imposing ships of greater tonnage.

Still another: By no means the least of the chief reasons for the great advance of ship-building interests in the world, was the policy adopted by Germany of late. On a fine day Germany quaffed a heady wine, and swore solemnly that she shall in the future dispute the supremacy of Great Britain as the ship builder and ship owner and mistress of four seas. And the aggressive policies of Germany in commanding the over-sea transportation trade on all the waters of the globe, inaugurated what might be called a race in ship-building and the maintenance of merchant marines between the two very great powers of the world.

Let us recall the history of the ship-building industry of Nippon in the picturesque story—with more than a touch of the old time feudalism—of what is now known as the Mitsubichi Dockyard Company.

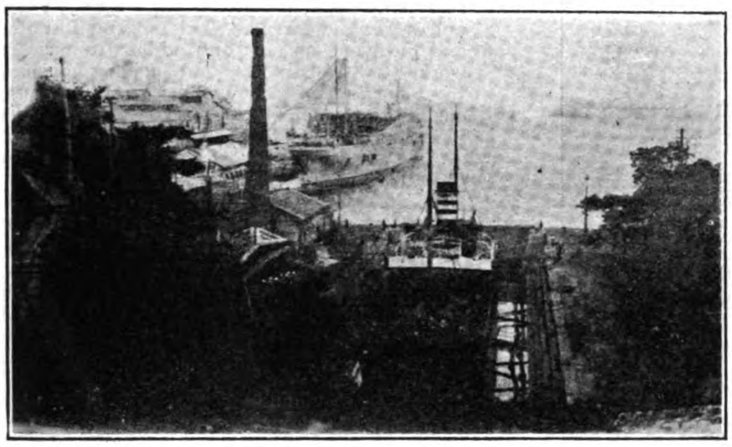
Mitsubishi Dockyard.—Where the Pacific loiters down the evergreen aisle in its Sabbath peace and dignity, into perhaps the finest harbor in the Far East, called the Bay of Nagasaki, along the water front covering about two and one-half miles, stands to-day the dry docks and workshops of the Mitsubishi Dockyard Company. Two dry docks of the company have done a great deal of work in the past. The ships belonging to the Hamburg-American Steamship Company of over 16,000 tons were repaired there. It was there that the Dakota and Minnesota of Mr. Hill's line were wont to receive such attentions as they needed.

The first of these docks is situated at a point called Azatagami, and the second is at the inlet of Azaaku. The third dry dock is in course of construction. It is being built at a point called Azahachikenya; it is to be the greatest dry dock in the Far East.

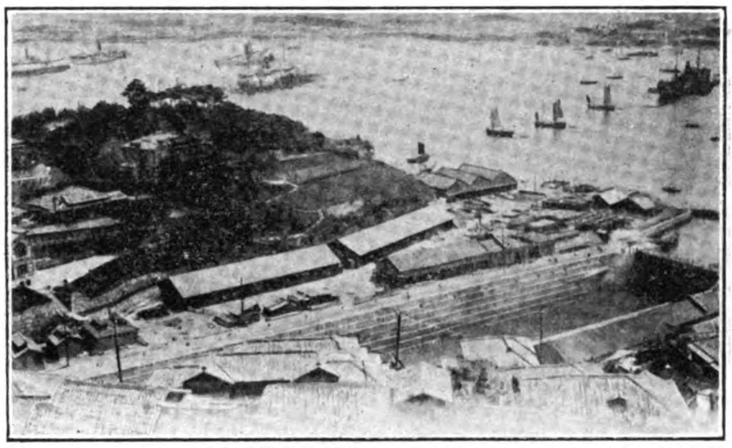
As with so many great things, the Mitsubishi Dockyard Company began in a very small way, and the beginning of it belongs to an ancient history, as the new order of things in Nippon goes. At first the dockyard was inaugurated by the Tokugawa Shogunate.

In the declining days of the Tokugawa Shogunate, Yokohama and Nagasaki were the two harbors which were opened for foreign commerce before all the rest. The appearance of many a stately ship from abroad at these two harbors was the first inspiration that gave restlessness and dissatisfaction to the shipping trade of Nippon. No longer would they look upon the one-mast wooden junk as quite satisfactory and sufficient unto their far-sea dreams. It was in those days that the government of Holland presented a toy steamer to the Shogun. It was christened with the poetic name of Kwanko-Maru. When it was damaged, the necessity of establishing a repair shop arose, and so it came to pass that a Hollander called Hardes, who at the time was engaged in a famous Dutch factory at Deshima, was engaged to serve under the Shogunate and establish a new workshop fitted with sufficient machinery, for the purpose of repairing the small "Ship-That-Sees-the-Light." It was in the second year of Ansei (1855), and this little workshop was the forefather of the present Mitsubishi Dock, at the inlet of Aku. It was exceedingly modest, this dock, in the days of the Shogunate. It was entirely too small to claim even a passing glance of the ship-building industry of the present day. The entire duty of this dock in the days of the Shogunate was simply to repair the Kwanko-Maru, and one or two other still smaller steamboats, which happened to be in the Harbor of Nagasaki. After the fall of the Shogunate, and when the Meiji Government came to power, the steamship tonnage of Nippon began to grow. Naturally the facilities for repair and construction of steamships increased as the days went by. The increase in the construction and repair of steamships compelled the Mitsubishi people to rebuild their workshops. They purchased another dockyard which was called Kosuge, and finally succeeded in establishing the present Takami dock. But the ship-building work of the Mitsubishi Dockyards in those days was not at all pretentious. The largest vessel they built in those days was a wooden vessel of 1,500 tons. This vessel was built in the days when the present Prince Ito was the Minister of the Department of Construction, and when Mr. Otori Keisuke, the present Baron Otori Keisuke, was the Chief of Bureau of Construction. In those days the Mitsubishi Dockyard still remained under the management of the Nippon Government, and you can see the souvenirs of those days in the conventional chrysanthemum crest, which the Government used to put upon all its workshops everywhere in those days, still retaining its imperial dignity on the stone fences of the Tategami dock.

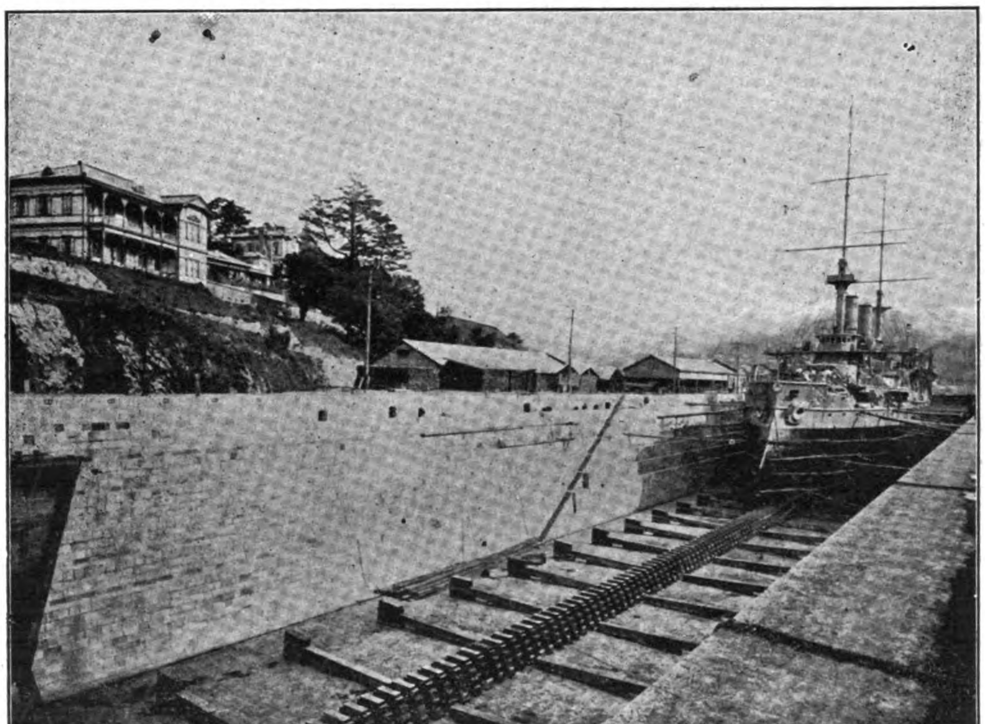
Now the Government enterprises, then as now, proved quite expensive without any



THE MITSUBISHI DOCK NO. 2, NAGASAKI



THE NO. 3 DOCK OF THE MITSUBISHI CO.



MITSUBISHI'S NO. 3 DOCK (714 FEET ON BLOCKS) WITH H. I. J. M. WARSHIP "IKI" ON THE STOCKS

perceptible profit. It was therefore on the 17th of July, 1884, that the government-owned dockyard was leased to Baron Iwasaki Yataro, who was the President of the Mitsubishi Co. at the time, and for some years the Mitsubishi Company tried to manage the docks under the lease. The lease, however, did not prove either to the government or to the Mitsubishi people, satisfactory. It prevented the Mitsubishi interest from exercising the full measure of its judgment, did not afford it the liberty of constructing new dockyards, or expanding the old ones. So, three years later, in 1887, the Government at last sold the property to the Mitsubishi Company. This was the time when Nippon was entering upon a new life. The country was about to be given a new constitution. All the industrial, economic, financial life of the country, as well as its political activities, were preparing themselves to receive new inspiration. One of the great necessities, the lack of which the country felt bitterly, was the ship-building facility. Answering therefore to the wide-spread demand for the construction of new ships, in 1889, the Mitsubishi Dockyard contracted and succeeded in building the steel steamers for Osaka Shosenkaisha. They were the *Kisogawa-Maru*, and the *Chikugogawa-Maru*, and the *Shinanogawa-Maru*. These steel steamers were built in the present Tategami shops and dock. By that time the Mitsubishi Company had managed to acquire a certain amount of machinery and tools which were essential for the proper construction of a ship, but compared to what it is today, it was indeed in its infancy. And indeed, it should hardly be dignified by the name of a dockyard; it was simply a shipbuilding shop which tried its best, with limited facilities.

The inevitable contest over the command of the four seas which had been in full play in the Mediterranean and the Atlantic, was beginning to invade the more distant seas. The waters of the Far East were then just beginning to feel the first hint of this active and strenuous struggle. Nippon was wakening in those days, without even pretending to be one of the great actors of the world-drama. Still, she was compelled, in a more or less degree, to take her part in the world movement, in doing what she could in augmenting the mercantile marine of the world. As the years went by the pressing demand for the increase of shipping facilities in the far eastern seas grew apace; Mitsubishi ship-building enterprises had no lack of work. It was in 1894 that the Mitsubishi Company felt an absolute necessity of extending their facilities in building ships, and at last succeeded in extending the length of the Tategami Dockyard to 523 feet. Thus the first dockyard of the present time was established. At the same time, it felt the necessity of building a new dock at the inlet of Aku. It was built with the length of 371 feet, and this is the second dock of the Mitsubishi Company of the present time. With the establishment of this second dock, the Mitsubishi Company established also a number of workshops surrounding it. Also the company increased the number of workshops which specialized in the manufacture and construction of different parts of a ship, and enlarged the scope and capacity of their work in every line. It was in those days that the Mitsubishi Company established different departments of machinery, of putting different parts together, a workshop for filing purposes, boiler shops, and in addition to these they established a special factory for the manufacture of sails, for the manufacture of cast iron articles, for the wooden workshop, enlarged and re-built a number of blacksmith shops, and the electrical department. It was just about this time also that they began to use electricity for motive power. Also, they installed a three-legged steel crane which has the capacity of lifting a hundred tons, and connected different workshops and different departments of the dockyard with rail. This gave an entirely new aspect to the dockyard, also a new scope.

A little later on, they leveled the hill back of the Tategami Dock, and gained a good deal of space along the water front by filling in the shallow portion of the inlet near the shore, and upon this new-made ground, they placed a number of new workshops, such as machinery and blacksmith shops, and bath. It was upon this site also, that they housed a new department of the naval architects, for the drawing of ship plant, and so on. Also they filled up about 3,000 tsubo (one tsubo equals about four square yards) in the portion along the reef near the shore, and devoted this space to the gathering place of materials for the construction of ships. The general idea of the size of these different workshops could be gained by saying that the woodworking shop alone measures 468 feet by 80 feet. Both at the inlet of Aku and at the Tategami, they have their own plant for generating electricity for the use of the shops, as well as for lighting purposes. From there, also, is furnished all the compressed air that is used all over the workshops. These two docks alone at the present time, afford a facility of building 20,000 tons of ships per year.

PART OF THE MITSUBISHI'S SHIPBUILDING YARDS

MESSRS. WHITEAWAY, LAIDLAW & CO., LIMITED

A company has been formed with a capital of £600,000 for the purpose of taking over the various stores known as Messrs. Whiteaway, Laidlaw and Co. and Messrs. Laidlaw and Lake, and carry on work as general drapers and outfitters as now and add to it insurance work, trust, banking and agency business, the receiving of money and valuables for safe custody, the providing and conducting of refreshment rooms, etc., and the undertaking of any other work that might be found advantageous at any moment. The vendors will take up 200,000 ordinary shares and 100,000 preference shares, fully paid up, in part payment of the purchase price.

With the prospectus is an illustrated supplement giving photo blocks of Messrs. Whiteaway, Laidlaw & Co.'s freehold and leasehold premises in several parts of India, Burma, Colombo, the Straits Settlements and Shanghai. There are 24 such places of business, and in every case the buildings are very large and artistically put up and show the enormous business that is being carried on under the name and title of Messrs. Whiteaway, Laidlaw & Co.

PEKING WATERWORKS

Messrs. Arnhold, Karberg & Co. have secured the contract for the construction and installation of the system of waterworks for Peking. The contract provides for the completion of the work by 1910 and the amount involved in the vicinity of half a million taels.

The supply for the system will be secured from the Hsi-Hsia-sun Ho River, directly outside the Anting Men Gate and which is supplied by two tributaries, the Sha Ho and the Ching Ho, which have their source in the Pei Shan and Hsi Shan respectively.

The control of this system is in the hands of The Peking Waterworks Co, which has been sanctioned by the Board of Communications at Peking, and has a capital of $3,000,000. The shares were offered for sale in Peking, Tientsin and Shanghai, and no foreigner may participate in the purchase. The government has guaranteed a dividend of 7% on the shares and $150,000 will be put aside by the Board of Finance every year as a guarantee fund for this purpse.

Taotai Chow Hsueh-hsi, late of Tientsin, has been appointed managing director of the company.

MINDANAO LUMBER TRADE

The report of Forester W. L. Hutcheson, of Zamboanga, covering the amount of lumber supplied the Philippine Railway Company for construction for the year ending June 30th, 1908, follows:

Zamboanga—1st group, 4,018.336 cu. ms.; 2nd group, 20,632 cu. ms.; 4th group, 4,885.773 cu. ms.; Total, 8,924.741 cu. ms.

Jolo—1st group, 213.532 cu. ms.;

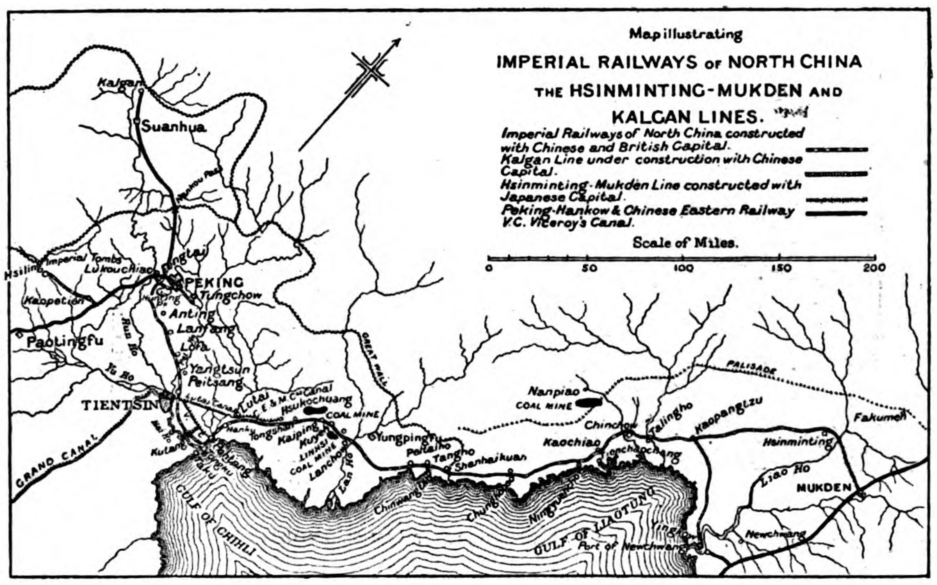
Iligan—1st group, 116.704 cu. ms.

Cotabato—1st group, 2, 895.929 cu.

Total, 12,195.906 cu. ms. or 5,168,527 board feet.

THE PEKING-KALGAN RAILWAY

The completion of the Peking-Kalgan Railway which is now under construction will open up to development all the country North of Peking and provide transportation by the most direct route and at reasonable rates for freight that now must be carried by the expensive caravan routes. The line will be 130 miles in length and the entire supervision of the construction is under the direction of Director General, Mr. Jeme Tien Yow, the well-known Chinese engineer and graduate of Yale and whose capacity for the work is well demonstrated by the success attained in piercing the country at Nankau Pass where nearly 5,000 feet in all of tunneling will be necessary to connect the Northern and Southern sections of the road.



The section in which the tunnels are being constructed and where the capacity of the Director General to overcome natural obstacles is being demonstrated, includes 12 miles of the most difficult country, including the Pass referred to. The first section of the road between Fentai, near Peking, and Nankau Pass, a distance of 33 miles, was completed and opened to traffic on September 30, 1906. This practically completed what might be called the South division of this line. In the meantime construction work has been in progress between the Pass by way of Suanhua and on the tunnels. It is expected that the entire line will be completed and open to traffic by December 31, 1909.

As recently announced, the largest tunnel about 3,570 feet in length has been completed and the work on the other and lesser tunnels is progressing rapidly.

Some idea of the character of the country through which this road passes and its importance to the development of trade in North China may be gathered from the following excerpts from an article published in the *Shanghai Mercury* of recent date:

"The building has been carried on by Chinese contractors who were working from the Southern as well as from the Nothern end of the tunnel, in addition to which the work also was carried on through a shaft which was sunk several hundred feet from the highest point of the mountain pass, just where the inner section of the great Chinese Wall runs. (The Chinese name of the Wall is "Wan-Li-Chang-Cheng," which means "the 10,000 mile rampart.")

"This great wall, covering 1,400 miles in length, was built 221 B. C. as a defence against the Mongolian hordes. The wall attracts year by year thousands of visitors, who have rather a hard time to get there. However, in another year, visitors will find an easy access to the wall by rail from Peking direct. At present the journey can be done from Peking taking a ricksha ride to the Hsi-Chi-Men, where there is the nearest station.

"In travelling from Tientsin, the Imperial Railway of North China leads to Fengtai, from where direct trains are found twice a day for Nankau Pass Station, which is the present southern terminus of the Kalgan Railway. At Nankau Pass donkeys or mules as well as mule-litters will be found. It needs about four hours climbing on the old pass route until the point can be reached where the inner section of the great wall exists. It is here on the highest point of the Pass where the large tunnel is pierced and from where another 60 miles of road lead down towards Kalgan where the outer section of the Great Wall is located.

"When this road is finished, it is expected that the bulk of merchandise, which since time immemorial has been carried over this Pass from China into Mongolia and Siberia, or vice versa, will be transported by rail. At present all the freight goes on camel backs, donkeys, mules, horses, carts, etc. It is a most interesting sight to pass the continuous upward and downward lines of animals loaded with merchandize and raw products, when one journeys and passes from Nankau Pass along this historic route.

"The main sections of the tunnel works are in charge and are supervised by Engineer Yen-Te-Ching, who was in the employ of the former American syndicate to build the Yue-Han Railway (viz., the Canton-Hankow Railway). He is a graduate of an American University.

"There is very little elevation from Fengtai to Nankau Pass. But after entering the Pass the elevation rises 1,800 feet in the short distance of 10½ miles. At the highest point the Railway crosses the Great Wall and here is the 3,570 feet long tunnel. In journeying along the narrow pass it can be seen that rails are now laid over high built embankments on the larger part of the whole road ."

While the construction of this line still is in progress a further extension to open up Northern China is being proposed. According to recent advices from Peking, the Ministry of Posts and Communications favor the extension of this line to Kulun and President Chen Pi of the ministry advances the following argument in its favor:

"(1) It will bring Mongolia into intellectual touch with the outside world.

"(2) It would facilitate communication between Peking and Mongolia.

"(3) It would have high strategic value.

"(4) It would give a great impetus to the development of Mongolian commerce.

"After considerable discussion it was decided that a settlement of the matter should be postponed pending an enquiry into ways and means of securing the funds, and the preparation of an estimate by Taotai Jeme Tien-yu on the subject of the probable cost."

In his recent work on *Railway Enterprise in China*, Mr. P. H. Kent, in referring to the Peking-Kalgan Railway, says:

"The effect of this line will be to open up the country to the north of Peking and greatly

Squires, Bingham & Co., Manila Photographers.

NOONDAY REST OF CARAVAN UP NANKAU PASS, TRANSPORTING RAILWAY SUPPLIES

CAMEL CARAVAN ON NANKAU PASS—NOTE STONE RAILROAD BED AND WILLOWS PLANTED ALONG LINE

to cheapen as well as to expedite the transit of goods from the interior to Tientsin. Kalgan is the junction of the great caravan routes from the west and from the north, by way of which the great bulk of wool and skins from Mongolia and the distant province of Kansuh, which form the more valuable portion of export cargo from Tientsin, finds its way to the foreign market.

"As regards the question of the ultimate continuation of the Kalgan line across Mongolia, opinions seem to differ. Some years ago the Russians had a scheme for a branch from the Trans-Siberia Railway, by way of Urga and Kalgan to Peking. A flying survey was made at the time, and it was found that virtually the only engineering difficulties would be experienced in the crossing of the Yablonoi Mountains, north of Urga. This scheme, however, has now, apparently, been abandoned. And it must be admitted that though such a line might, in certain circumstances, be politically justifiable, according to the point of view, and while its construction would be warmly welcomed by residents of the Far East, whom it would bring many days nearer home, it is difficult to see how it could be made to justify its existence as a purely commercial undertaking. At any rate it is one of those projects the realization of which will only come, after all, with the distant future."

In a review of railways in China, the *London and China Express* refers in a recent number to the Peking-Kalgan line and says:

"China, it is true, has been making the Peking-Kalgan line. We may perhaps here note incidentally that the prolongation of this line to Kiachta, and so to Irkutsk, would bring about a revolution in the possibilities of mail and passenger traffic between Europe and China. Roughly, the railway distance to Central Europe would be rather better than half the mileage of the sea route. Somewhere within the time of 10 to 13 days it would then be possible to traverse from North or South of China to almost any capital in Europe, proceeding *via* the Kalgan-Kiachta-Irkutsk line, and then over the Siberian Railway to Moscow, and thence connect with the other European lines. But to resume, China has obtained the funds for the Peking-Kalgan line from the surplus earnings of the Imperial Railways of North China, and the line has been constructed by men who have gained their knowledge of construction work on the same line. We believe we are quite correct in asserting that the trace for the line was run by the foreign engineers of the North China line, though they have had no part in the actual work."

In a foot note Mr. Kent states that the estimated cost of the Peking-Kalgan line, including rolling stock, is 6,000,000 taels, or an average of £6,000 to £7,000 a mile.

The railway map accompanying this sketch is reproduced from one of Mr. Kent's illustrations.

*TAOTAI JEME TIEN-YOW, M. INST. C. E.

The Chief Engineer and Director of the Peking-Kalgan Railway received his foreign education in Yale University, the United States of America, where he graduated in 1878. He also studied in England where he matured his engineering profession, being elected a few years ago a member of the well-known Institute of Civil Engineers of London.

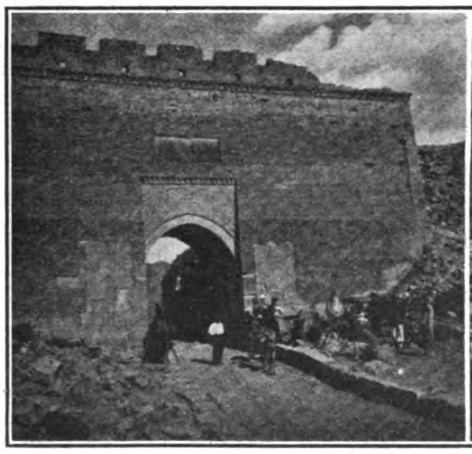
On his return from abroad, Mr. Jeme worked under the Imperial Railways of North China for a good many years, first as Assistant Engineer and later as Resident Engineer. In the latter capacity he had to travel to many places in North China, then untraversed by railroads, and, consequently, was able to acquire much and varied experience in railway construction. At one time he was stationed in Tongshan, at another in Tongku, or in Yangts'un, or in Tientsin, but to whichever section he was put in charge he gave satisfaction to his chief, Mr. C. W. Kinder, C. M. G., M. Inst. C. E., the General Manager and Engineer-in-chief of the Northern Railways. He saw the completion of the Peking-Tientsin line, and the extensions to Shanhaikuan and Newchwang and other places. When the Chinese government decided a few years ago to construct a line between Peking and Kalgan, to which it was resolved no foreign interference was to be permitted, Mr. Jeme was selected for the important post of Chief Engineer on the strong recommendation of H. E. Viceroy Yuan Shih-k'ai, who was then Director-General of the Railway Administration of North China The practicability of this scheme was doubted in some quarters, especially among foreigners. Mr. Jeme, however, undertook the task. He doggedly and patiently worked on. It is true he had many difficulties to surmount, but by the autumn of last year, he had the satisfaction to report the completion of his line as far as Nankau, and the Great Wall will be reached by the end of this year, a remarkable achievement considering the tremendous natural obstacles to be overcome in the Pass. At the opening ceremony of the railway, Mr. Jeme received many congratulations for his ability and success. All the newspapers of North China, Chinese and foreign alike, eulogized his work and services. Nor does he not deserve the encomiums, for as pointed out by the press, when the history of railway construction came to be written, Mr. Jeme Tien-yow will be remembered as the first Chinese engineer who had been able to build a railway and see to its completion without foreign assistance and supervision.

Naturally, when his reputation was established, railway syndicates tried to obtain his services. He was offered the post of Engineer-in-Chief of the Canton-Hankow Railway by the Viceroy of the Two Kuangs. But as most of our readers know, Viceroy Yuan Shih-k'ai could ill spare him from North China, and, instead, recommended another rising engineer, Mr. Kwong, for the post. Mr. Jeme became Assistant Director of the Railway, from which position he was promoted to the Chief Directorship when Director Chên Chao-ch'ang was transferred to Manchuria a couple of months ago. Mr. Jeme now, therefore, holds the chief position of chief engineer and chief director of the Peking-Kalgan Railway. Finally we are glad to hear that Viceroy Yuan Shih-k'ai has recommended the throne to confer the

*World's Chinese Students' Journal.

Squires, Bingham & Co, Manila Photographers.

HIGHEST POINT ON NANKAU PASS AT TUNNEL OPENING ON PEKING-KALGAN R.R.—TUNNEL INDICATED BY X



Squires, Bingham & Co., Manila Photographers.

GATEWAY AND ROAD THROUGH GREAT WALL WHERE RAILWAY PASSES | VIEW OF GREAT WALL WHERE IT PASSES INTO MANCHURIA—PARTLY TORN DOWN

degree of Chinshih on him. It will be remembered that when the Ministry of Education held an examination in Peking last year of those returned students who had studied in foreign countries, he assisted the examiners in going over the papers on engineering subjects. In Chinese officialdom an aspirant to an office must needs have a literary degree in order to entitle him to become a regular official. Although Mr. Jeme holds the rank of a Taotai or Intendent of a Circuit, he possesses no Chinese degree, and the Viceroy's effort to get him one is for the purpose of putting him on a footing with other regular Chinese officials and to signify a recognition by the Chinese government of the foreign education of China's son.

NEW PHILIPPINE MINING CO.

The success of mining ventures in the province of Benguet, and particularly Antamok district, is attracting the attention of the mining world, and the development of that region is practically assured. Capital, for years timid, is now assured and not a few mining companies are being promoted or projected to develop properties that promise good returns on investment. The latest prospectus received is that of the Headwaters Mining Co., Incorp., of Antamok, Benguet, with a capital of ₱600,000. The directors are well known businessmen, British and American, and professional men of the Philippine Islands who have been connected with successful mining enterprise in Benguet. They are F. Stuart Jones, of Messrs. Smith, Bell & Co., Thos. Colston Kinney, attorney and president of the Bua Mining Co., H. T. Fox, of Smith, Bell & Co., L. O. Hibberd, and N. Peterson. The secretary is F. J. Higham. The mine office is at Antamok, Benguet, and the Manila office at No. 16 Carenero.

The following is the announcement made by the company:

"The 'Headwaters' is the latest gold strike and the best prospect yet discovered in the Benguet Mining District. It comprises a group of twelve adjoining claims, or about 250 acres, and is situated at the source of the Antamok River about half a mile above the "Bua," "Consolidated" and "Camote" mines, all of which are in successful operation. The district, therefore, has been proved.

"Two well-defined ledges of free milling ore have been opened up on the property and traced by means of open-cuts and drifts for four thousand feet in length. The assays, taken at various places along the line of strike, average over ₱40.00 per ton; and the ledges run from 6 to 15 feet in width.

"Abundant pine timber and waterpower are to be found on the property; and a good wagon-road runs within a stone's throw of the western claims. Baguio, the Summer Capital of the Government of the Philippine Islands, is four miles distant from the mine. Skilled native labor for mining is obtainable at from ₱1.00 to ₱1.50 per day; and supplies of all kinds can be purchased at Baguio at reasonable prices.

"The Headwaters Mining Co. has been incorporated under the laws of the Philippine Islands for ₱600,000, all stock being fully paid up and non-assessable.

"The Directors of the Corporation are well-known business and mining men who have thoroughly investigated the proposition.

"For purposes of development ₱100,000 worth of this stock will be sold at 25% of its face value.

"This fund will be used solely for the further opening up of the mine and the blocking out of ore. When sufficient ore has been placed in sight to warrant it, the remainder of the Treasure stock will be sold at par for the purpose of erecting a 60 ton per day milling and cyanide plant.

"From this plant the probable results will be as follows:

Number of tons treated per year, 312 days, 60 tons per day, 18,720.		
Estimated Value of product per ton.		₱20.00
Gross value of output		₱374,400
Cost of Production @ ₱6.00 per ton..	₱112,320	
Administration and Sundry Expenses..............	40,000	152,320
Net profits for year		₱222,080

or about 37% on the Capital Stock.

"In making this calculation the value of the ore has been estimated at less than one half of the assay value and the cost of production has been increased ₱2.00 per ton over and above the actual cost as shown by other mines in operation in the same district.

"Subscriptions for the before mentioned shares should be made to the Secretary, No. 16 Carenero, Manila, P. I. Should the amount required be oversubscribed the shares will be issued pro rata."

	Oz. gold per ton	Value	Oz. silver per ton
Headwaters Ledge No. 1	1.00	20.67	6.48
Headwaters Ledge No. 2	1.32	27.29	1.06

N. B. These values are given in gold.

NEW PUBLICATIONS

Thirteenth Volume of Rosenstock's Directory, which contains a complete alphabetical list of business firms and foreign residents of the cities of Hongkong, Manila and Shanghai, has been received and a casual review of the volume gives the impression of continued application to the work of giving patrons the best possible service. That the publisher is endeavoring to give the residents and businessmen of Hongkong, Manila and Shanghai, a directory that will meet with their approbation, is indicated by the foreword of the latest revision. He says:

"The Directory is a necessity to modern commercial and social life. *No Publication Has More General or Extended Use.* It is referred to constantly by all classes of people at all seasons. It is used not only by residents of the city that it covers but by all strangers who come within its gates. The Directory is used by the travelling public arriving by the large mail steamers calling at Oriental ports every day, and by those who consult the Directory Libraries, which are maintained by directory publishers the world over—it being the custom of directory publishers to exchange publications, which are kept on file in each city for the benefit of the public.

"It is the earnest desire of the Publisher to improve and make each succeeding volume of greater value and utility to his patrons than its predecessor. The next issue will contain a directory of Hankow and Tientsin, and other additions will be made as time and conditions permit. No great enterprise was ever developed in a day; so it is with directory-making, but we assure our patrons that we will ever endeavor to do a little better to-morrow than we are able to report on our accomplishment of to-day. We want our patrons to co-operate with us by assisting our agents in their work of collecting data for the directory and thus help us make what is most to be desired, by patron as well as publisher, an accurate and up-to-date book of ready reference."

Classification is the publisher's offering to aid the businessman in adding to system, the economy in time and effort, and in this volume, his object seems to have been most satisfactorily attained.

The Journal of the Philippine Commission and the Inaugural Session of the Philippine Legislature has been received and covers the work of these two bodies from October 6th, 1907, to February 1st, 1908. The volume is bound in cloth and the Bureau of Printing from whose presses the journal was issued announces experiments in anti-vermin book varnish to protect the book from rodents and insects.

Typical Steel Railway Bridges is the title of a volume from the pen of W. Chase Thompson, M. Can. Soc. C. E., assistant engineer, Dominion Bridge Co., Limited, Montreal, Canada, and author of "Bridge and Structural Design," and issued from the presses of the Engineering News Publishing Co., New York. This volume is a sequel to "Bridge and Structural Design" and the author announces in his foreword that "The inclusion of the estimated weights of the structure is an important feature of the book, as estimating forms a large part of the work of the designer. Where detail drawings are given, the estimates have been figured very closely and the relative weights of main material and of details are thus accurately obtained. In other cases, a percentage of the weight of the main material in trusses has been added to the details. The method of determining this percentage has been clearly demonstrated. The author trusts this book may be of service to those in actual practice, as well as to students and draftsmen who are less familiar with the methods used in designing offices."

"*Albany Grease*" and "*Albany Grease Cups*" is the title of a booklet of pleasing design received from Adam Cook's Sons, New York. Reference is made to the two lubricating lines of this firm and the advantages derived from their use. This Cup Leaflet is made available free of cost by addressing Messrs. Adam Cook's Sons, 313 West Street, New York City.

RUBBER EXHIBITION

The following circular was recently issued by Secretary H. C. E. Zacharias of the Planters' Association of Malaya:

"With further reference to the forthcoming International Rubber Exhibition in London, I beg to inform you that at a Meeting of the local Exhibition Committee it was resolved—in order to meet the wishes of what seems to be the majority of exhibitors—to rescind the local regulations previously decided upon and to substitute the following:

"1. Each exhibit will be shown under the name of the Estate whose produce it is;

"2. The quantity of Raw Rubber allowed to be shown by each property is limited to 28 lbs., but it is left to the Exhibitor to make up this total in as many different grades of rubber as he pleases;

"3. There will be no Selection Committee at all, and full discretion is left to the Exhibitor to show whatever seems good to him;

"4. Each Exhibitor will be charged $10—this charge being in addition to any voluntary contributions which have already been invited from *all* Estates in the Peninsula;

"5. Each Exhibitor has to see that his case of exhibits reaches Messrs. Kennedy & Co., of Penang, not later than the 15th of July; and Messrs. Kennedy & Co., in conjunction with myself, will see that all exhibits are shipped on one Bill of Lading by Mail Steamer leaving Penang two days after that date.

"As you will see, the time at our disposal is very short, but my Committee trust that you will make special efforts to ensure on your part that the Malayan Section of the Exhibition does worthily illustrate the important industry that it is to represent.

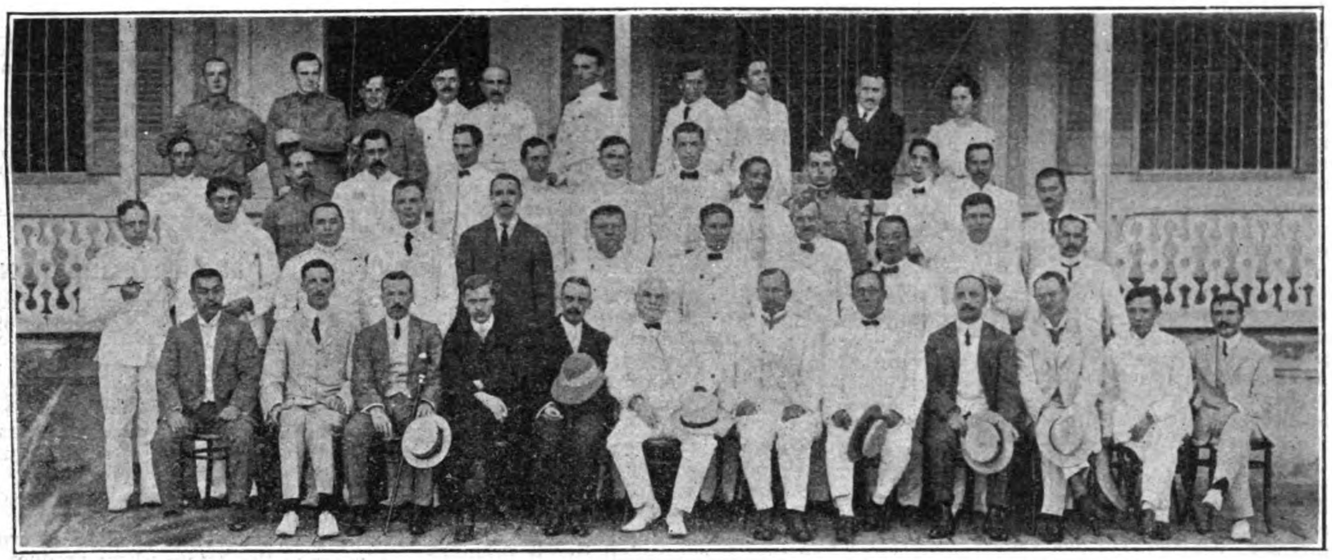
HANGYANG IRON AND STEEL WORKS SECURES BIG CONTRACT

It has been practically decided by the directorate of the Canton-Kowloon Railway to place an order with the Hangyang Iron & Steel Works for the supply of all the steel rails, bridge steel and iron work necessary to the construction of this section of the road. This is the first occasion that so large an order has been placed in China for construction material by a railroad financed in part by foreign capital. According to the report of the managing director, Taotai Wei Hun, the purchase of steel and iron at the Hangyang works will mean a saving of many thousands of dollars. This saving is made on freight and greater expedition in delivery as well as in first cost.

The works have supplied the Peking-Hankow Railway with material in small quantities, but this is the largest order yet filed from any one section. The materials supplied for the Chinese companies in Liangkiang as well as Szechuan and Lianghu have given satisfaction to the directorates and if this big order is delivered promptly and in good order, the future of the works is assured.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE

*By Paul C. Freer



Group Photograph taken at Manila of the members of the Philippine Medical Association and the promoters of the Far Eastern Association of Medical Research with the foreign delegates present at the recent annual meeting.—Governor-General Smith and Commissioner Worcester, Secretary of the Interior, are seated near center of front row. The foreign delegates present were: Sir Allen Perry, P. M. O., Ceylon; Captain Ryley, Medical Corps, Royal Army, Hongkong; Dr. Clark, Director of Health, Hongkong; Dr. Fraser, Straits Settlements; Dr. Hayes, Surgeon General, Siamese Navy; Dr. Keith, Singapore; Major Vassal, French Army, Saigon; Dr. Cheng, Medical School, Imperial Army, China; Dr. Kitajima of Tokyo.

The last meeting of the Philippine Islands Medical Association held in February of this year brought to the Islands eleven delegates from foreign countries, those represented being Ceylon, Hongkong, the Federated Malay States, Singapore, Siam, China and Japan, and it seemed to be the opinion of all of those present that the medical profession in the Far East had advanced to a sufficient degree to warrant the formation of a new association which should promote the science and art of tropical medicine in the Orient.

The purpose of this association would be to endeavor to unite into one compact organization the medical profession of the Far East for the growth and diffusion of medical knowledge; to promote friendly international intercourse among physicians; to elevate the standard of medical education; to enlighten and direct public opinion in regard to the problems of hygiene; to form habits which may conduce to the prevention of disease among the native populations; and to present to the world the results of such scientific investigations.

The foreign delegates, as well as a number of representatives of the society in Manila, met on two days, after the sessions of the Philippine Islands Medical Association, and drew up a Constitution and By-Laws. It was decided that the membership of the Association should consist of the members of all duly constituted, regularly organized medical societies within the field of this organization, and all medical officials in the civil, military, naval, or other organized services of Governments within these territories. The Constitution and By-Laws were ratified by all of the gentlemen present, and the formation of the organization is now going on in the various countries which were represented.

It was decided to hold the next meeting in Manila, during the year 1910. The officers elected were Dr. Paul C. Freer, Director of the Bureau of Science and Dean of the Philippine Medical School, President, and Dr. Francis Clark, Medical Officer of Health, Hongkong, Secretary-Treasurer.

The formation of this association registers what is hoped to be a new era in reforming the hygienic conditions in the Orient. It may safely be stated that what are known as "tropical diseases" could with certainty be limited and, in many instances, even eradicated if the mass of Oriental peoples could be brought to a true appreciation of hygienic living and to an understanding of the changes in their customs which it will be necessary to introduce in order to diminish the mortality and limit the spread of infectious diseases While such an accomplishment may at present be but a remote possibility in India, it certainly is by no means hopeless in countries with a lesser population, and as the study of tropical diseases becomes more extended and a knowledge of etiology and prophylaxis more exact, the means will be at hand effectually to improve the general mode of life and with it general health conditions. We are too prone at present to consider the tropical climate as the chief factor influencing the condition of the people, forgetting completely that this same tropical climate is a prolific breeding ground for all manner of pathogenic organisms. The discussions at the meeting of the Philippine Islands Medical Association made the fact patent that a very large percentage of people in the Philippines were more or less infected with animal parasites which, although not immediately fatal and perhaps not even visibly detrimental to health, nevertheless might produce a lassitude which might account to a large extent for the ease with which these people were attacked by other diseases and for the lack of energy which is noticeable among them.

A report of autopsies at the same meeting disclosed the serious nature and the high percentage of infections with tuberculosis in the Philippine Islands, and there is no doubt but that the same conditions exist in other Far Eastern countries.

A union of all the interests will therefore not only tend to increase the energy with which investigations will be carried on and hence lead to a more comprehensive knowledge of the so-called "tropical diseases," but it will also, by means of publications which will be read in all of the interested countries, stimulate activity in measures relating to hygiene. The Far Eastern Association of Tropical Medicine, therefore, apart from uniting the medical profession into a compact organization, has also a great missionary field, and, as the association spreads and acquires new members, and as its influence is felt in all parts of the region included in its membership, there doubtless will be accomplished results which will be of the highest importance to the communities at large and which will even effect, in a marked degree, the commercial prosperity of the countries interested. While it is not to be expected that the term "tropical diseases" will be eliminated because it will no longer refer to a specific class of infections, nevertheless, it is hoped that the influence of this organization will be so great throughout the Orient that the present ominous meaning attached to the designation will be greatly modified.

* Director Bureau of Science, Philippine Islands.

BIDS OPENED

The following tenders for the construction of eight steel lorchas for the Quartermaster's Department, Division of the Philippines, were opened on July 15th:

The Shanghai Dock & Engineering Co. offered to build five 90-foot and three 126-foot lorchas for $75,200, in all, the first four to be delivered in 22 weeks and the balance in 32 weeks and to be set up in Manila.

The Hongkong Whampoa Dock Co., Limited, offered to build each of the 90-foot lorchas for $8,665 and each of the 126-foot steel lorchas for $13.500.

Messrs. Warner, Barnes & Co. for each of the 90-foot lorchas, $9.610.

El Varadero de Manila, $12,000 for each of the 90-foot lorchas and $16,000 for each of the 126 foot lorchas.

The Tanjong Pagar Dock Board, $13,720 for 90-foot lorchas and $63,616 for the three 126-foot lorchas to be delivered in Singapore.

Messrs. Wilson & Co., of Manila, $9,900 for each of the 90-foot lorchas and $14,600 for each of the 126-foot lorchas.

TAIKOO DOCKYARD & ENGINEERING COMPANY

The *London & China Express* announces the registration of The Taikoo Dockyard & Engineering Co. of Hongkong, in London, under date of May 23rd. According to the *Express*, the object of the company is to adopt an agreement with John Swire and Sons, and to carry on at Hong Kong the business of dock owners, mechanical and marine engineers. The signatories are:—Sir Edwin D. Lawrence, Bart., 13, Carlton House-terrace, S. W.; R. D. Holt, 1 India-buildings, Liverpool; C. C. Scott, Greenock; W. J. Thompson, 38 Mincing-lane, E. C.; John Swire, 8 Billiter-square, E. C.; G. Warren Swire, 8 Billiter-square, E. C.; J. H Scott, 8 Billiter square, E. C. Each of whom takes one share. There is no initial public issue. Messrs. John Swire and Sons, of London, are general managers, and Butterfield and Swire are agents in Hong Kong. The registered office of the company is at 8 Billiter-square, E. C.

RIVAL FOR MACAO

A large company is being promoted with the approval of the viceroy for the purpose of converting the town of Wanchai into a port for the trade of Heungshan district to compete with the Portuguese port of Macao. This movement is the result of the dispute between the Portuguese colony and the Chinese over the boundary line.

THE GRAND EXPOSITION OF JAPAN

The year 1912 promises the greatest exposition of the world's products of the industries and the arts ever held in the Far East and, if the plans now under way are carried to a successful conclusion, the Grand Exposition at Tokyo will eclipse many of the modern expositions held in western countries in the last two decades. Japan has participated in almost every exposition held in other countries and from indications these former attentions and demonstrations of enterprise on behalf of the Nippon government will be reciprocated by all the powers.

Perhaps the most significant recognition that the Tokyo Exposition received to date was the appropriation of $1,500,000 by the congress of America to be expended in making a comprehensive American exhibit. Germany, Mexico, Canada, New Zealand, Great Britain, France and other countries were prompt in expression of the spirit of co-operation and pledged themselves to participate liberally in the exposition.

The nucleus of the Exposition fund was projected by an appropriation of yen, 10,000,000 by the Imperial Japanese government and this amount has been greatly augmented already by appropriations from the different Imperial departments and provincial governments together with liberal contributions from commercial bodies and corporate and private enterprises.

The success attending the initial work of promoting the exposition is due to the activity and personal influence of the venerable Viscount Kentara Kaneko, LL. D., His J. I. Majesty's Privy Councillor and Director-General of the Grand Exposition of Japan, supported by his capable working staff comprising Mr. Ushitaro Beppu, Director-General of Affairs, Grand Exposition; Mr. Yamawaki, Chief of Department of Exhibits; Mr. Okamota, Chief Accountant; Mr. Sakai, Private Secretary to Viscount Kaneko and Mr. Yakochi, Chief of Construction.

In an address to the representatives of the press at the Peers' Club at Tokyo, Viscount Kaneko, in soliciting the co-operation of his guests, concluded his speech by a reference to the object of the exposition in the following characteristic words:

"We expect to make this exposition a national jubilee to show our gratitude towards Asia, Europe and America. During the last 1500 years, the Indian religion and Chinese philosophy have largely contributed to build up the intellectuality of the Japanese people and enabled us to grasp the new science brought by Europe and America fifty years ago. After we were admitted to reap the fruits of western civilization, nineteenth century science worked powerfully upon our mind, and made the modern Japan recognized by the whole world. Therefore on this occasion, we hope to show to our benefactors the results of adaptation and assimilation of the types of oriental and occidental civilization in intellectual works as well as in material pursuits.

"Whether we are fully prepared or not to assume the gigantic responsibility of holding such an exposition, and in inviting to it all the nations remains to be seen, but our earnest hope is to solicit all the nations to come together and assist us in this Grand Exposition of the arts of peace, and realize the debt, which one owes to the other, in the matter of promoting science and education, industry and commerce, of which the twentieth century is so justly and so proudly characteristic."

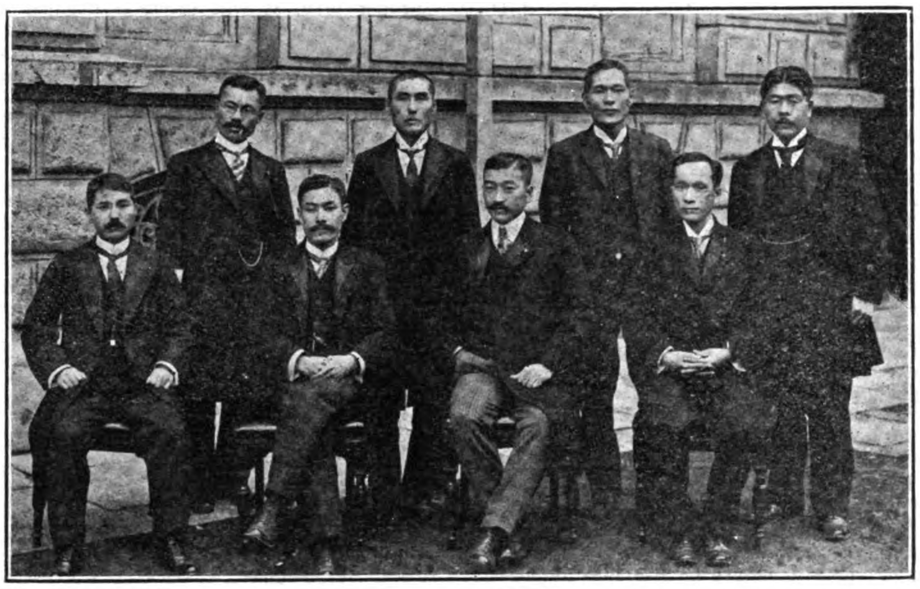
In an address delivered at a banquet to the foreign diplomatic representatives at Tokyo, in which a general invitation to participate was included, Viscount Kaneko said in part:

"In regard to the articles of exhibit, we have already sent out a circular, and all nations are invited to send their goods. These exhibits are specified under five categories—Education, Science, Machinery, Electricity and Manufactured Goods. Of course, any nation can erect a separate building at its own expense, where it may exhibit articles irrespective of the five classes. As for the five classes mentioned, the Imperial Government expects to erect the buildings with space enough to take in all articles coming under the five heads; but as to the display of such exhibits as agricultural, mineral or fishery products, it is an earnest wish of the Imperial Government that the foreign Governments will erect the special buildings; and furthermore I should like to be permitted to emphasize that such buildings should be built entirely in the style so as to show their national characteristics. We want to have each building to show its own peculiar architectural art, so as to have the best models of European and American architectures on the Exhibition grounds. This will be an object-lesson for us, by which we might improve our so-called European buildings. With these objects and aims, we have sent a most cordial invitation to all nations, and the prompt replies are coming fast from different foreign Governments. Few days ago, it was reported in some foreign newspapers that the coming Exhibition of 1912 was to be postponed for five years. Allow me to make a correction. The Government has never contemplated such a change. We expect to carry out the preparation for our Exhibition in four years, and are ready to open it on the 1st day of April, 1912."

Viscount Kaneko later presented a comprehensive outline of the Grand Exposition at a dinner given the foreign consuls of Yokohama and Tokyo and officers of the Yokohama Board of Trade at the Imperial Hotel, in which he referred particularly to the relation of the exposition to foreign trade. His address follows:

"Gentlemen:—

"Allow me to avail myself of this opportunity given here this evening to explain the nature and extent of our Grand Exhibition of 1912. Outwardly and in name the exhibition would be domestic, but in materials we expect to make it an international one. Then you might ask me, why do we not call it an international exhibition? But when we look upon the present condition of Japan, the condition of the people, and the condition of transportation and social conveniences, we are not yet in a proper position to welcome foreign governments and peoples; therefore, we dare not ask them to come with a notion of participating in such an international exposition, as they are accustomed to in Europe and America, but we simply extend our most cordial invitation to assist us in our domestic exhibition.



Working Staff Grand Exposition Tokyo 1912:—Ushitaro Beppu, Director General Affairs; M. Yamawaki, Chief of Exhibits; Mr. Okamota, Chief Accountant; Mr. Sakai, Private Secretary to Viscount Kaneko the President; Mr. Yakochi, Chief of Construction.

"*Limitations of Exhibits.*—Neither do we dare ask foreign governments and people to send all their products, because the space at our disposal is not large enough to take them all. For this reason, the exhibits are limited under five heads—Education, Science, Machinery, Electricity and Manufactured goods. But here let me say a few words, if any foreign government or corporation would like to send the articles not included in the foregoing categories, such an exhibitor can build at his own expense a separate building, governmental or private, where he can exhibit whatever products he likes; of course, the space allotted him will be free of charge, and we do not expect to collect a single penny in this connection.

"*Plan of Exhibition.*—The site of the exhibition grounds includes the former Parade Ground at Aoyama, belonging to the Army Department, which covers about 140,000 tsubo. This is not sufficient for our purpose, and we submitted a humble request to His Imperial Majesty the Emperor, who has granted us the use of his Imperial Estate of Yoyogi. This is nearly 160,000 tsubo, much larger than the Parade Ground. These two places will be connected by a wide avenue, extending somewhere over 700 ken in length. The site has been decided somewhat after the fashion of the Exhibition lately held at Milan, and also is similar to the site of the late Exhibition at Liege. These two grounds are connected by wide avenues, thus we might say that the Belgian and Italian exhibition gave us an example.

"*Asiatic Products.*—We have studied the coming exhibition with special points of view. First we expect to make it a genuine representative display of Asiatic products. As far as we know, no exhibition has ever been held taking in the whole of Asia for the special benefit of the peoples of the West. The gentleman on my left, the Chinese Consul-General, will, I am sure, assist us all in his power to make the exhibition meet our aim and bring a success in this respect.

"The next point, we expect to make the exhibition a special one in connection with the Western Colonies in the East. The gentlemen here present have lived in Japan many years, and have studied the trade in the Far East. As you all know that the Colonies of Europe and America in Asia are now coming rapidly to the front in international commerce. The products of these colonies are coming to Japan, some in the form of raw material, and other in a manufactured shape. This colonial trade of Japan is now held as an important factor of our future commerce in the Indian Archi-

pelago and Asiatic waters. Furthermore it extends beyond the equator to New Zealand, Australia and many other parts of the world. We expect to make Japan the centre of the colonial trade of western nations in the Far East.

"*Machinery and Electricity*.—In regard to machinery, electricity and manufactured goods, I appeal to your special consideration. You, gentlemen, have studied the growth of our commercial conditions. Japan has just entered the industrial comity; in other words, Japan is just transforming her former industries, as have been in Europe seventy or eighty years ago. Europe was once in the state of home industries, whose factories were found here and there by the roadside, or by little streams. Although Japan is now rapidly changing her industrial condition, we would ask you to bear in mind that we are yet in a very imperfect state. Therefore we ask the Western people, with their experience and scientific knowledge, to bring their new machines and new inventions, and show us how to change properly from home industry to the factory system, of which Europe and America are so proud to-day. So with regard to machinery, I hope you will influence your people at home to bring such machines, as will fit in the present condition of Japan. Supposing you bring a machine, which is so gigantic that we could not possibly utilize in this country at present, I fear that it might be shipped back after the exhibition. Therefore, I hope you will tell your home people just what dimensions, what horsepower, and what kinds of machines are needed for our use.

"*Machines to be Bought*.—Our Government desires every exhibitor from foreign countries to bring such machines as will find Japanese purchasers at the exhibition. We do not want foreign exhibitors to take back their machines home. We hope to have every one of them bought by our people, and the exhibitors return home with a prospect of future trade. That is the wish of our Imperial Government. Consequently we may possibly limit the horsepower of machinery by the regulation shortly to be issued, with a view simply to guide foreign exhibitors in the class of machines needed in Japan at present. In this connection, I might emphasize two kinds that are most needed now, particularly the hand machines and those having to do with electricity. As you know already, Japan is a mountainous country. From the coast to the base of the hills, the distance is so short that there are many rapids and water-falls, just as in Switzerland, or Sweden and Norway. Water-power is found everywhere, and we expect to utilize it by such machinery, as used in those countries. Therefore, if such machinery should be brought here, and its working be explained by foreign engineers, the Japanese will then understand its usefulness, and the machines will be sent for from the different parts of the country, where the pools, water-falls and rapids are abundant. Moreover the street cars, electric light and many electrical plants are still in the stage of infancy. In these lines, we need an assistance of foreign exhibitors. We cannot develop our foreign trade, or increase it without the assistance of western people. Therefore, we earnestly request your assistance to make this exhibition a success.

'*Mutual Advantages*.—With regard to manufactured goods, you are more or less directly or indirectly acquainted. As we have no large factories to supply even our own needs, so there is a very large margin to be filled up by the manufactured goods of Europe and America. Let your keen business men come to Japan and compare our articles with their own, they will no doubt find many things that might be supplied by their goods much cheaper than we make them here; because our industrial establishments are not up to the mark of the Western countries. Moreover they will find many articles made in Japan, which can be sent profitably home for commercial purposes. Thus the coming exhibition could easily be made a reciprocal benefit and a mutual gain as well as an interchange of ideas. I might enumerate many examples to corroborate what I have already said. The machine for cutting a timber has been introduced by our Government within the last year or two to be used in the Government forests. Formerly we used to cut our timber by hand-saw; but now we are using the machines imported from England. Such as dyeing substances from Germany, glass wares from Belgium, and engines and iron materials from the United States, and wines and artistic goods from France, are the important articles in our foreign trade, which has grown enormously within the last few years. If this exhibition is carried out in a proper way, it will prove a decided benefit both to Japan and foreign nations; therefore I do hope, gentlemen, to make this Grand Exhibition of 1912, not merely a temporary display of foreign products, but one of the lasting effect upon our international commerce. We expect to make this coming World's Fair a reciprocal and mutual benefit, by bringing foreign machines and goods, nearer and closer to the Japanese market. So closely interwoven should these commercial interests become, that no power on earth could disturb our cordial relations with foreign nations, which have been so happily maintained for a half century."

HART-PARR 22 NOMINAL—40 BRAKE—HORSE POWER MOTOR PETROLIUM, ALCOHOL, OR GASOLENE—PLOWING AND HAULING ENGINE AT WORK

SOLVING AGRICULTURAL PROBLEM IN HORSELESS AREAS

The possibilities of development along agricultural lines in the Philippine Islands which are opened up by the introduction of the Hart-Parr 22 Nominal (40 brake) h. p. Motor Plowing Engine are so great as not to be at first comprehended. Probably the greatest hinderance to the cultivation of large tracts of land now unimproved is the lack of means whereby the necessary plowing may be done. In the past the great disadvantage in using traction engines for agricultural purposes has been the enormous cost of fuel as the expense of its transportation to the provinces must be added to its original cost. Setting aside the question of expense, however, the difficulties attendant upon the transporting of coal or wood in large quantities form an insurmountable barrier against the use of steam traction engines in many districts which otherwise might be brought under cultivation. The great need of the Philippine Islands is intelligent cultivation of the soil and anything that tends to solve the present perplexing problems facing the agriculturist will prove a veritable boon.

The Hart-Parr Motor traction engine is built to consume gasoline, alcohol or petroleum as fuel, the latter having been used in the successful test recently given for the benefit of the members of The Philippine Assembly by C. E. Helvie who controls the sale of these machines for the Orient.

Using petroleum as fuel the expense of operation of this motor plow is only about half that of a steam engine, and if the present revenue tax on alcohol be removed by the government, the cost of fuel will be brought to a minimum as this commodity can be manufactured and placed on the market at so low a figure as to make the problem of fuel, which has been one of the most important factors of the past, a very minor consideration in the operation of traction, portable and stationary engines, as the formality of transporting a can of alcohol to the provinces is so simple as not to deserve serious consideration. Alcohol can be manufactured from almost every variety of vegetation found in the Islands and with the revenue tax removed from de-naturalized alcohol, the Hart-Parr traction, portable and stationary engines can be operated at about one quarter of the expense of steam engines.

In reference to the adaptability of the motor, Mr. Helvie says:

"Right here it may be well to say a few words regarding the time and fuel saved in the operation of this motor engine. There is no waiting to, 'Get up steam', it being possible to begin operation on one minute's notice; as soon as the engine stops the consumption of fuel also stops; the difficulties and expense of hauling fuel and water to the engine are eliminated; there is no drawing of fires; no boiler to require expensive repairs; no pumps or injectors to get out of order, and the simplicity of operation makes the services of an experienced engineer unnecessary, as a few days' instruction will be sufficient for the owner to acquire the knowledge essential for the successful operation of his engine.

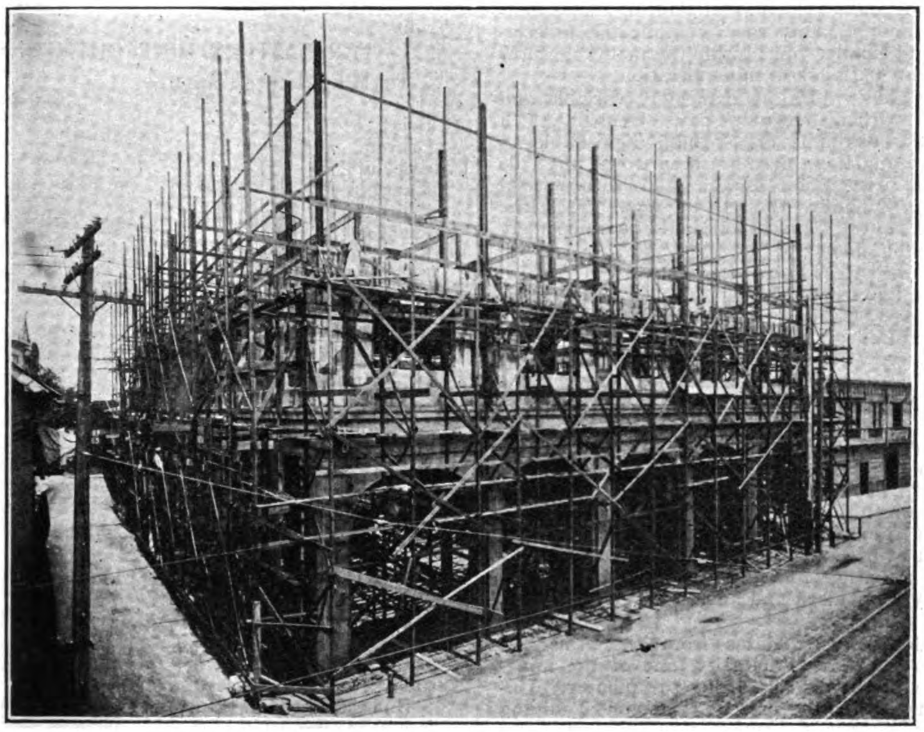
"The Hart-Parr traction engine is built on simple lines and for the generation of the greatest amount of power with the least possible mechanical complexity. One of these engines has been used to haul a large steam traction engine out of the mud where it had mired down and been allowed to remain for several weeks being unable to move itself.

"The Hart-Parr engine, when attached to it, not only moved itself, but readily and without the least difficulty, pulled the steam engine out of the mire without the necessity of using jacks or other appliances.

"The success of this engine in working in soft or sandy soil is partly due to the construction of the wheels which are especially designed for the purpose and make it possible for the Hart-Parr plowing engines to work successfully in soil where another engine would bury itself."

AMERICAN HARDWARE COMPANY'S NEW BUILDING

When the American Hardware Company of Manila occupies its new home on Calle Echague, it will have the distinction of being in possession of the largest building built of structural steel and reinforced concrete in the Philippine Islands devoted to trade. The building is 95 ft. × 100 ft., its front part being three storeys, and the rear four storeys, and completed will cost ₱125,000.



THE AMERICAN HARDWARE CO.'S NEW FOUR STOREY STRUCTURAL STEEL AND REINFORCED CONCRETE BLOCK IN MANILA

The construction is of structural steel girders and reinforced concrete. Either of the two elements used in this work is sufficiently stable to carry the entire loading so that it might be said that the construction is capable of carrying a double loading. The additional loading capacity will, however, be appreciated in view of the dead load which will be carried in the building from the heavy hardware stocks necessary to the extensive operations of the company.

The foundation is made of substantial piling and one feature of the construction is the provision made for protection against earthquakes. In this respect the specifications were patterned after the latest in the construction of buildings in San Francisco where a special study of the subject has been made by architects since the great upheaval there.

The entire building will be occupied by the company. The second and upper storeys will be used as godowns and display rooms while the first storey will be utilized as a salesroom. The building will be equipped with an electric freight elevator. The entire interior finish is of the finest Philippine hardwood and a plate glass front extending the length of the building 16 feet high will add to its exterior beauty and give an abundance of light to all parts of the interior.

Mr. Robert M. Loper is the contractor. The construction began January 15th, the roof finished July 12th and the company expect to occupy it August 15th.

Green Island Cement was used throughout in the concrete construction.

PERSONAL

M. T. Liong, formerly customs taotai at Shanghai, has been appointed superintendent-in-chief of the Railways of China and given a place as vice-president on the board of posts and communications.

Dr. Robert Koch, the famous German bacteriologist, recently arrived in Tokyo and proposes visiting different points in China, India, Java and to call at Cairo on his way to Europe. He was given a very warm reception by the members of the medical profession in Japan and arrangements are being made to receive the distinguished scientist at the different ports.

Mr. Donald McColl, the new traffic manager of the Shanghai Tramways, arrived in that city June 6th to take charge. Mr. McColl was formerly chief bookkeeper of the Glasgow Corporation tramways and has seen service in Lisbon as accountant and traffic superintendent of the electric tramways there. He was later appointed general and traffic assistant of the Metropolitan District Railway which was then about to be electrified. Mr. McColl is the author of "Tramway Bookkeeping and Accounts".

M. Korostovetz has been appointed Russian minister to Peking. This diplomat served as secretary to the Portsmouth Peace Conference and has an excellent knowledge of English. He is also thoroughly equipped for the duties of minister as a result of his wide experience in far eastern countries.

Edward Gordon Lowder Esq., a commissioner in the Chinese Imperial Customs' Service, has received His Britannic Majesty's license and authority to wear the insignia of the First Class, Third Division, of the Imperial Chinese Order of the Double Dragon, conferred by the Emperor of China for valuable services.

Mr. Dortmuller of the Kia-chow-Tsinan Railway has been appointed chief engineer of the German or Northern Section of the Tientsin-Pukow Railway.

Mr. C. Johnson, formerly traffic manager of the Canton-Hankow Railway, has been engaged as chief engineer of the Hunan section.

Mr. Carl Mathiesson of Tientsin has been appointed secretary to the managing director of the Tientsin-Pukow Railway.

Mr. A. H. Bottenheim, general manager of the Vacuum Oil Co., is making a tour of Manchuria, Mongolia and Siberia with a view to establishing new agencies of this company. He will proceed down the Amur to Vladivostok, says the *Peking & Tientsin Times*.

Mr. Charles Bradbury, formerly superintendent of telegraphs, British North Borneo, has been selected by the Canadian Government to take charge of its wireless telegraph station at Cape Lazo, Vancouver Island.

The *China Critic* announces the arrival at Tientsin of Mr. H. N. Fulton of the firm of Messrs. Howarth, Erskine, Limited, of Singapore.

Mr. J. Yamamoto, director of Mitsui & Co., has been making a tour of inspection of the different branches and agencies of the company in China.

Mr. C. H. Allin, director of Posts and Telegraphs of the F.M.S., is on a trip to Australia.

Mr. F. S. A. Bourne, acting judge of H. B. M. Supreme Court at Shanghai, sailed for Seoul, Korea, last month.

Sir Walter Caine Hillier, K. C. M. G., C. B., professor of Chinese at King's College, London, has been appointed Adviser to the Chinese Government. Sir Walter joined the British consular service in China as interpreter student in 1867 and served until 1904 when he was serving as consul-general to Korea, resigning to take the Chinese chair in King's College.

Mr. F. E. Cloud, American vice-consul-general at Shanghai, has been promoted to the rank of consul and assigned to Antung.

Mr. T. C. Swaby has accepted the position of general business manager of the *Siam Observer*.

Mr. Robert William Mansfield, C. M. G., who has been 38 years in H. B. M. consular service in China and who has until recently been consul general at Canton, retired recently on pension. Mr. Mansfield has a wide acquaintance in China and has enjoyed the confidence and regard of all foreigners in South China without regard to nationality and will carry the best wishes of all with him in his retirement.

Manager M. E. Legros, manager of the French Mining Co., Kampar, is on leave in France.

Mr. A. R. Vincent, formerly judge of H. B. M. Supreme Court for Siam, has been appointed assistant Judge of H. B. M. Supreme Court at Shanghai *vice* Mr. F. S. A. Bourne.

Mr. H. K. Chambers, civil engineer of the works department, Naval Yard, Hongkong, leaves for England on a vacation.

Mr. S. Silverstone, manager for Hongkong of the Pacific Mail Steamship Co., Occidental & Oriental S. S. Co., the Toyo Kisen Kaisha and the Portland Steamship Co., sailed for the homeland on the Korea last month for an extended vacation.

The Emperor of Japan has conferred the fifth class of the Imperial Order of the Rising Sun upon Mr. Walter J. Ballard, the well-known writer and accurate compiler of trade statistics.

Mr. Levien, commercial agent for the New South Wales government, has been visiting the principal ports of the East with a view to extending the trade of the Commonwealth and expects to make his headquarters permanently at Shanghai as soon as his arrangements are complete. He is now interested in promoting a refrigerating line of steamers that will include Tientsin, Newchwang, Dalny, Chemulpo and Japanese ports as well as Shanghai.

THE AROROY MINING DISTRICT, MASBATE

*H. G. FERGUSON

The Aroroy mining district is situated in the northwestern part of the island of Masbate, Philippine Islands, near the junction of the two prongs which form the island, and on the eastern side of Port Barrera, a deep bay which cuts far into the northern coast. The principal mines and prospects lie within a district 12 km. from north to south and 6 km. east to west, bounded on the north by Ticao Strait, on the east by Mt. Vil-lon, on the south by the Lanang river and on the west by Port Barrera.

Three permanent streams drain the area, the Buyuaen flowing northerly into Ticao Strait, and the Guinobatan and Lanang rivers flowing northwesterly into Port Barrera.

Near the bay are a great number of small hills and ridges generally trending in a northeasterly direction. Three large hills occupy the central portion of the area. The northern of these, Mt. Aroroy (or Kanataouataouan), has an elevation of 250 meters and is separated from its southern neighbor, Mt. Bagadilla, by Bangon creek, a tributary of the Guinobatan. Mt. Bagadilla has an elevation of about 340 meters and is separated from Mt. Kalakbao (elevation 202 m.) by the deep canyon of the Guinobatan River. These three hills all trend to the northwest and owe their height to the greater resistance offered to erosion by the numerous quartz veins which outcrop here. Nearly all the mines of the district are located on these hills.

Southeast of Mt. Bagadilla is the highest mountain in the district, Mt. Vil-lon, or Liberty Cap, as it is called by the American miners, which reaches an elevation of about 400 meters. This mountain, as far as known, contains no veins and has its long axis in a northeasterly direction, at right angles to the general trend of the topography. Other prominent hills are Mt. Cogran, a ridge running northwesterly in the southern part of the district, along which the vein formerly worked by the Mt. Cogran Co. outcrops. There is also a range of hills cut by the Lanang river in the southern part of the area, between two hundred and two hundred and fifty meters in height.

Near the coast the country is covered with cogon, but a few kilometers inland there is thick forest containing much valuable timber. At the mouths of the Guinobatan and Lanang Rivers are vast mangrove swamps which will furnish an immense supply of excellent firewood.

Geology.—In the north of the district there outcrops a coarse-grained rock locally known as "granite" but in reality a syenite. Further south on Aroroy and Bagadilla mountains is a complex series of altered sedimentary and fine-grained basic igneous rocks. At the Gold Bug open cut there is an exposure of coarse conglomerate and carbonaceous slates. Near Mt. Vil-lon there are exposures of red slate with lenses of psilomelane. South of this sedimentary series are andesites and andesite breccias, dipping to the southwest at small angles. At the southern edge of the district basalt comes in. Mt. Vil-lon is composed of a rather coarse-grained andesitic rock, which may be intrusive. Concerning the relative ages of these rocks the only point that is clear is that the andesitic series is younger than the rocks of the northern part of the district.

After the andesite came the period of vein formation. The veins, while they cut all the formations including the andesite, are for the most part confined to the northern part of the district where the older rocks outcrop. They are in general closely parallel, the strike being northwest, and stand practically vertical, though with a slight tendency to dip to the northeast in the northern veins and southwest in the southern. A second vein series of less importance runs nearly east and west crossing the main series. As a general rule the gangue is quartz with oxides of manganese and iron, carrying free gold at the surface and grading into sulphides at depth. However, the veins exhibit great mineralogical variety, especially in the proportion of iron and manganese present. Calcite often occurs as the principal gangue mineral and sometimes both quartz and calcite are present. In a few veins sulphides of copper are prominent and in rare cases galena and sphalerite occur. The veins as a rule show evidences of faulting along their walls, and in many cases complicated brecciation and smaller veins inside the main one show different periods of mineralization.

The gold values are extremely variable and follow rather irregular pay streaks. As a rule the workable ore is indistinguishable to the eye and there does not seem to be any rule for the association of the gold with special gangue minerals, though in some cases the higher values seem to follow the more coarsely crystalline quartz.

In two places there occur small outcrops of a dark limestone capping the veins, and hence younger. On the west side of Port Barrera are terraces of white coral limestone of comparatively recent date. Evidently the country to the west of the bay is a more recent uplift while the Aroroy region has remained stationary.

Mining.—Lode mining was carried on to a very considerable extent in prehistoric times by means of deep narrow open cuts which seem to have followed small rich pay streaks. In Spanish times there seems to have been a certain amount of prospecting done, as is shown by various squared shafts; and the ruins of an arrastra, worked about a hundred years ago by a Spaniard and an Englishman, are still to be seen.

Modern mining dates from the American occupation, Mr. Edelmaier, one of the mine-owners of the district, being the pioneer. Unfortunately for the present condition of mining in the district the work was conducted by men without training or ability, expensive machinery was imported before proper development work had been carried out, sampling was largely neglected, and little attempt was made to block out ore reserves. The result has been a succession of failures which have given the district a bad name. In a district like Aroroy there is especial need for extremely careful work, as the ore, while plentiful, is of a low grade and the difference of a peso a ton in the cost of mining might easily determine the fate of a mine.

Natural conditions are extremely favorable for cheap mining. The mines are only a few kilometers from a perfect harbor, and a road is now being built from the village of Aroroy to the mines. There is an abundance of excellent mine timbers at hand as well as excellent firewood. The Guinobatan river, flowing through the center of the mining district, gives good mill-sites and should be a future source of water-power. The veins are vertical and outcrop on fairly steep hillsides which will make mining very easy. The ground is firm and requires but little timbering. The two difficulties which the miners have to contend with are labor and the variations in the value of the ore. The first will solve itself, when concerns with sufficient capital come into the field, by the importing of more efficient laborers from other islands, and by the development of the contract system of payment.

In default of any means of grading ore by eye, it will be necessary for each company intending to do serious mining in the district to be provided with its own assay plant and a competent assayer. Frequent assays must be made from all the working faces, otherwise much worthless material will be mined as ore.

Insufficient capital, inexperience, gross mismanagement, and petty quarrels among the American miners, have been responsible for the present stagnation of the industry in this district. It is to be hoped that a new era will soon dawn and that companies will be organized with sufficient capital to employ proper mining methods and will be willing to wait for their returns until proper development work has been done. Unless mining here is treated as an investment and not as a gamble there will be no future for the district.

*Geologist, Division of Mines, Manila, P. I.

There is at present available at the Bureau of Science a limited number of topographical maps of the Aroroy Mining District, covering an area of approximately 40 square miles and showing the principal mineral veins. The maps are drawn to a scale of 1/20,000 (about 3 inches to 1 mile) and are printed on photographic paper with dark lines on a light background. You are advised that while the supply lasts these maps will be sold at the price of ₱1 00 each. Request for same should be forwarded to the Chief Clerk, Bureau of Science, Manila, P. I.

FAR EASTERN MINE OUTPUTS

Tin Mine Returns, for May.

	Piculs.
Belat	405
Bruseh	401
Gopeng	687
Kanaboi	225
Kinta	415
Kledang	352
Kuantan	258
Lahat	325
New Gopeng	270
Pusing Lama	501
Rambutan	290
Redhills	150
Royal Johore	160
Sempam	100
Serendah	419
Sipiau	133
Tekka	250
Tronoh	1501

GOLD OUTPUTS

Raub Australian Gold Mining Co., June Output, 995 oz.

Oriental Consolidated Mining Co., April Output in value, $105,554 in gold.

Benguet Consolidated, Output for June, 109 oz. free gold and 70 lbs. cyanide @ $30.

Bua Mining Co., Output for June, 133 oz. free gold and 25 lbs. cyanide @ $30.

Paracale Dredging Co., Output for June, 463 oz. free gold.

BATAN COAL MINES

Captain Hubert L. Wigmore, U. S. Engineers, has submitted his report on the progress made in the development of the coal deposits on Batan Island, Philippine archipelago, to the Chief Quartermaster, Philippines Division, and it is not improbable that the necessary coal for the division may be made available within the year. In his report, Captain Wigmore states that by the end of September, the government coal mine will have an output of at least 2,500 tons a month. The tests made of this coal pronounce it a fair steaming coal, and while the results obtained are not so satis factory as from Japanese or Australian coal, it can be produced much more cheaply and with the saving in transportation, its use in the division will prove much more economical.

The captain recommends the exploitation of the timber on the island by the government and that the receipts from this source be utilized in the development of the coal deposits.

The harbor at Linguan is reported to be an excellent site for a coaling station and there is little doubt but that the recommendations made in its favor will be favorably considered

INSULAR COAL COMPANY'S RAILWAY

The acceptance by the Insular Coal Co. of the franchise authorized by the Philippine government for the construction of a railway connecting the coalfields of Camansi, Cebú and the port of Danao in the same province last month, inaugurates the first railway of its kind, designed to develop the coal mining industry, in the Philippine Islands. This line now under construction is about twelve kilometers in length. It will tap the Camansi and Compostela coal districts now controlled by the Insular Coal Co. The line will also connect with the Philippine Railway Co.'s line in Cebú.

FAR EASTERN COMPANY REPORTS

YOKOHAMA FIRE INSURANCE CO.—At the semi-annual meeting held June 22nd, this company declared a dividend at the rate of 10% per annum.

JAPANESE SUGAR COMPANIES.—The sugar companies of Japan now operating as a trust declared a dividend of 15% per annum at the general meeting held in Tokyo recently. This dividend was paid after providing for yen 300,000 to cover the yearly payment in redemption of the seven million yen loan.

TINAN SUGAR MANUFACTURING CO.—This Formosan company has concluded a most successful half-year and the announcement is made that a dividend of 20% was announced for the term at the recent meeting.

DORAT PETROLEUM INDUSTRY CO.—This leading oil company of Java distributed a dividend of 12% for the year 1907 against 9% for the previous term.

JAPAN-CHINA STEAMSHIP CO.—At the half-yearly meeting of this company at Tokyo last month the directors' report showed a net profit for the term of yen 1232 and no dividend was authorized. Excessive competition was the explanation given of the lack of success of the enterprise during the period and the directors added that the freight carried by the company was less than one-third the amount carried the previous year.

SHANGHAI MERCURY, LIMITED.—The directors of this company recommended the payment of a final dividend of 6% making 10% in all for the year.

RUSSO-JAPANESE BANK.—Advices from Berlin state that the report of the directors of this institution for the year 1907 showed a loss of roubles 4,216,630, the amount being covered by the bank's reserve.

CICELY RUBBER ESTATES CO., LIMITED.—The directors of this prosperous company recently recommended the payment of a final dividend of 27.5% making a total of 42.5% on preference shares and a final of 22.5% making a total of 37.5% on ordinary shares for the year.

EAST ASIATIC CO.—This company declared a dividend of 8% for the year 1907 against 11% for 1906. The reserve account amounts to 3,600,000 kroner and a balance of 418,865 was carried forward.

CHINA MUTUAL LIFE INSURANCE CO.—A most encouraging report was submitted by the directors at the annual meeting held in Shanghai May 28th, and a dividend of tael one a share payable half yearly on the first days of July and January, respectively was authorized.

JAPAN PAINT CO.—A dividend at the rate of 12% per annum was declared at the half yearly meeting of this company held last month.

HOTEL DES COLONIES CO., LIMITED.—This company paid a dividend of 6% for the year 1907 and the directors' report indicated larger profits for the next term.

VOELKEL & SCHROEDER, LIMITED.—At the annual meeting of the shareholders of this company a dividend of 10% was declared for the year 1907.

LANE, CRAWFORD & CO., LIMITED.—At the twelfth ordinary meeting of this company held in Shanghai a final dividend of 7% making 12% in all for the year was directed paid.

WEEKS & CO., LIMITED.—For the year ended February 29th, 1908, a final dividend of 6% making 10% for the term was authorized.

TOBU RAILWAY CO.—This company has declared a dividend of 6% per annum for the first half-year.

MOJI FIRE INSURANCE CO.—For the first half of 1908 a dividend of 20% per annum was paid by this company.

THE SHINAGAWA WHITE BRICK MANUFACTURING CO.—At the general meeting of this company a dividend of 12% was declared for the term.

REUTER TELEGRAM CO.—A final dividend of 2.5%, making 5% for the year, was declared at the annual meeting of this company.

WATKINS, LIMITED.—According to the directors' report for the year the entire mortgage account of the company has been wiped out and the title to the Watkins' building is clear. The prospect for a dividend next year is brighter.

PENINSULAR & ORIENTAL STEAM NAVIGATION CO.—The report for the half-year ended March 31st showed a general falling off in business compared with the corresponding term last year. The usual interim dividend of 5% per annum on preferred stock and 7% per annum on the deferred stock was authorized.

INDO-CHINA STEAM NAVIGATION CO., LIMITED.—At the annual meeting of this company in London June 26th a dividend of 6% on preferred shares for the year 1907 was declared and no dividend on the deferred shares. The underwriting account, according to the directors' report, has a credit balance of £240,000; the general reserve, £10,000, and £13,750 carried forward.

LINGGI PLANTATIONS, LIMITED.—The directors have recommended the payment of a final dividend of 10% for the year ending December 31st, 1907, making in all 20% for the year and to carry forward the sum of £4,000.

WEI-HAI-WEI LAND & BUILDING CO.—An extraordinary meeting of the shareholders of this company was held at Shanghai, June 12th, and the following resolution was adopted: "That the Capital of the Company be reduced from Tls. 250,000 dvided into 10,000 shares of Tls. 25 each to Tls. 200,000 divided into 10,000 shares of Tls. 20 each, and that such reduction be effected by returning to the holders of the 3674 shares that have been issued paid up capital to the extent of Tls. 5 per share and by reducing the nominal amount of all the shares from Tls. 25 to Tls. 20 each."

GERMAN ASIATIC BANK.—This institution will pay a dividend of 8% for the year 1907 compared with 9% for 1906 and 11% for 1905. The small dividend is due to the necessity of maintaining large reserves to meet losses following the unfavorable financial conditions in Japan and China.

TOKYO RAILWAY CO.—The directors of this company have recommended the payment of a dividend of 7% per annum for the first half year.

TOKYO STOCK EXCHANGE.—A dividend has been declared by this institution for the first half year, 1908, at the rate of 10% per annum.

TOKYO ELECTRIC LIGHT CO.—The semi-annual meeting of this company was held June 20th and a dividend of 10% was authorized. The net profit for the year was yen 773,283 and yen 52,411 was carried forward.

OSAKA SHOSEN KAISHA.—The following was the report submitted by the board of directors of this company at the meeting held June 25th:

	Yen.
Net Profit	389,907.050
Brought forward	13,643.985
Placed to Reserve	25,000.000
Placed to Reserve for deterioration of vessels and machinery	10,000.000
Placed to special Reserve	20,000.000
Dividend at the rate of 15% per annum	315,000.000
Special Dividend at the rate of 10% per annum	25,000.000
Carried forward	12,601.635

DOMESTIC TRANSPORT CO.—At the semi-annual meeting held last month a final dividend of 10% was directed paid making in all 13% per annum for the term.

CONSOLIDATED MALAY RUBBER CO., LIMITED.—The net profit for the year 1907 was £6,373 out of which a dividend of 10% was directed paid. The issue of 7,000 new shares at a premium of 10s. a share was also authorized to extend operations.

SUNGEI KAPAR RUBBER CO.—The report for the year 1907 showed a profit of £1,419 of which £201 was written off and the balance carried forward.

SELANGOR RUBBER CO., LIMITED.—A final dividend of 4d. on the fully paid up shares and 3d. on the shares 1s. 6d paid on Dec. 31, making the total dividend for the year 10d. per share on the fully-paid shares of 2s. each and 6d. per share on the part-paid shares, or at the rate of 41.6 per cent. They have further decided to write off the sum of £1,200 against planting account and £300 as depreciation on buildings and machinery.

BORNEO-SUMATRA TRADING CO.—This company has authorized the payment of a dividend of 6% for the year.

BESITIO AGRICULTURAL CO.—A dividend of 15% has been announced by this company for year 1907.

NETHERLANDS-INDIA AGRICULTURAL CO.—This company has declared a dividend of 7.66% on the shares and fl. 18.47 on the profit shares. The dividend for 1906 was 6.668% and fl. 11.58 a share.

PONDOK GEDEH AGRICULTURAL CO.—A dividend of 6% was declared by this company for the year 1907.

DELI AGRICULTURAL CO.—At the annual meeting of this company a dividend of 5% was declared for the year.

PETJANGAAN AGRICULTURAL CO.—This company paid a dividend of 15% as a result of its operations for 1907.

THE CONSOLIDATED MALAY RUBBER ESTATES LIMITED.—In their report for the year ended December 31st, 1907, the directors of this company recommended the payment of a dividend of 10% and to carry forward after writing off preliminary expenses £514.

BELAT TIN MINING CO.—At the general meeting of this company a dividend of $1 a share equal to 10% was directed paid.

S. MOUTRIE & CO., LIMITED.—At the meeting of the shareholders of this company a dividend of 8% was directed paid and a most satisfactory report for the year adopted. One pleasing feature of the meeting was the vote of $1,000 to the widow and daughter to the late deceased manager, Mr. Moutrie.

DAMANSARA (SELANGOR) RUBBER CO., LIMITED.—Advices from London are to the effect that this company has declared a final dividend of 3% making 5% for the year.

Shanghai Electric & Asbestos Co., Limited.—At a meeting of this company held May 28th, a final dividend of 4% was authorized making 8% for the 11 months ended February 29th, 1908.

The Harpenden (Selangor) Rubber Co., Limited.—At the fifth annual meeting a dividend of 4% on paid up shares was authorized and at an extraordinary meeting it was decided to go into liquidation with a view to converting the company into a sterling organization.

Bank of Indo-Chine.—At the annual meeting of this institution a dividend of f. 47.50 was declared for the year 1907.

Tingha Consolidated Tin Mines.—Two quarterly dividends at the rate of 10% per annum were paid by this company for the half year ending January 31st, 1908.

Nederlandsche Handel-Maatschappij.—This company declared a dividend of 8% for the year 1907.

Nippon Yusen Kaisha.—This company declared a dividend of 10% and a special dividend of 2.5% per annum for the term just ended. The following is the report and accounts submitted by the board of directors:

Gross receipts	14,416,288
Disbursements	14,948,890
Net profit	1,467,396
Brought from last term	307,882
Total	1,775,278
To legal reserve	73,369
To bonus	71,358
Dividend (10% per annum)	1,100,000
Special dividend (2% per annum)	200,000
Carried to next account	310,551

At the extraordinary general meeting, subsequently held, the following resolutions were submitted and passed with one accord:—(1) That the present Tokyo branch be converted into a sub-branch; (2) That the branch offices at Osaka, Yokkaichi and Fusan and sub-branches at Nemuro, Aomori, Nagoya and Gensan be discontinued; (3) That the fixing of the date of the enforcement of the above decisions be commissioned to the board of directors. The intention to close Nagasaki, Chemulpo and Tientsin branches has been abandoned owing to the authorities' advice and suggestion of the local people.

The Shanghai Dock & Engineering Co., Limited.—This company has declared a final vidend of Tls. 2.50 a share making Tls. 5.00 in all for the year ended April 30th, 1908. The following is a copy of the directors' report and statement of accounts:

To the Shareholders of the Shanghai Dock and Engineering Co., Ltd.

Gentlemen.—The Directors submit herewith their Report with Statement of Accounts made up to April 30th last.

The net profit for the year ended on the 30th April, 1908, including the amount brought forward from last year, and after paying all charges and allowing for all known liabilities, amount to Tls. 309,742.98.

After deducting the Interim Dividend of 2½ per cent on 55,200 Shares paid in January this year, which absorbed Tls. 138,000, there remains for distribution the sum of Tls. 171,742.98. This amount the Directors recommend to be dealt with as follows, viz:—

A Final Dividend of Tls. 2.50 per Share	Tls. 138,000.00
Amount to be carried to New Account	" 33,742.98
	Tls. 171,742.89

In accordance with par. 98 of the Memorandum and Articles of Association, two of the Directors, Messrs. A. M. Marshall and C. Michelau, retire, but, being eligible, offer themselves for re-election.

The accounts have been audited by Messrs. J. E. Bingham and F. N. Matthews, who retire, but, being eligible, offer themselves for re-election.

Dr.

PROFIT AND LOSS ACCOUNT

	Tls.
1908. January 21st.	
To 2½% Interim Dividend on 55,200 Shares	138,000,00
1908. April 30th.	
To Depreciation on Buildings on leased Premises	2,000.00
To Property destroyed, lost or reduced in value	3,798.16
To Allowance for bad and doubtful debts	1,190.74
To Directors', Auditors' and Hongkong Agency Fees	8,400.00
To Balance	171,742.98
Taels	325,231.88

Cr.

	Tls.
1907. May 1st	
By Balance carried forward	10,459.95
1908. April 30th.	
By Transfer Fees collected during year	272.02
By Interest received and estimated accrued on Investments, Deposits and Current Account with Bank, less Interest on Cash Deposits with Company	16,586.23
By Transfer from Working Account	297,913.68
Taels	325,231.88

BALANCE SHEET

LIABILITIES

1908. April 30th.

	Tls.
Capital Account	
Registered Capital—	
55,700 Shares at Tls. 100	5,570,000.00
Subscribed Capital—	
55,138 Shares issued at Tls. 100 fully paid up	5,513,800.00
62 Shares at Tls. 100 due Members of the late S. C. Farnham, Boyd and Co. Ltd., to be issued on application	6,200.00
55,200 Shares	5,520,000.00
Reserve Fund	
(Taken over from the late S. C. Farnham, Boyd and Co., Ltd	1,000,000.00
Unpaid Dividends	
(Taken over from the late S. C. Farnham, Boyd and Co., Ltd)	5,224.00
The Shanghai Dock and Engineering Co., Ltd	18,445.50
	23,689.50
Sundry Creditors	
Local Bills, etc	37,258.17
Employees' Deposit Account	3,706.22
Directors', Auditors', and Hongkong Agency Fees	8,400.00
	49,364.39
Suspense Account	2,959.35
Profit and Loss Account	
Balance at Credit of this Account	171,742.98
Tls.	6,767,756.22

ASSETS

1908. April 30th. Tls.

PROPERTY ACCOUNT

Land:	m.	f.	l.	h.
"Old" Dock as per Title Deeds	20	2	8	9
"Cosmopolitan" Dock as per Title Deeds	162	2	4	1
"International" Dock as per Title Deeds	127	6	7	3
"Tunkadoo" Dock, as per Title Deeds	35	6	9	5
"New" Dock, as per Title Deeds	48	6	4	3
Pootung Engine Works, as per Title Deeds	54	3	1	8
Total	448	8	5	9

Value Tls. 1,729,519,03

DOCKS, BUILDINGS, WHARVES AND WALLS

"Old" Dock, "Cosmopolitan" Dock, "International" Dock, "Tunkadoo" Dock, "New" Dock, Pootung Engine Works	1,239,900.27
Harbour Moorings	23,355.72
Buildings:	
At all Establishments	469,991.85
Machinery and Plant:	
At all Establishments	1,127,721.91
Tools, Patterns and Gear.	
At all Establishments	105,808.51
Steamers, Launches and Vessels	211,900.00
Pontoons, Steam Dredgers, Pile-drivers, etc	72,372.92
Furniture:	
Office and Drawing Office Furniture, drawing materials and appliances, plans, etc	19,390.00
Stock Account	
Value of materials on hand	1,108,783.17
Sundry Debtors	
Accounts in course of collection, etc	218,256.40
Value of completed portion of unfinished work on hand, less installments received on account	24,156.42
Suspense Account:	
(Including Tls. 12,003.45 secured by a Promissory Note dated 7th September, 1905)	14,586.05
Investments and Deposits	
6 North-China Insurance Co., Ltd. Shares	
22 Hall and Holtz, Ltd do	
18 Yangtsze Insurance Association Ltd do	
1 Hongkong Fire Insurance Co., Ltd do	
10 Canton Insurance Office, Ltd do	
128 Shanghai Mutual Telephone Co., Ltd do	
5 Shanghai Ice C. S. & R. Co., Ltd do	
100 Kochien T'p't'n & Tow Boat Co., Ltd do	
Tls.	17,690.41
Note:—There is a small contingent Liability for uncalled Capital on certain of above investments.	
Hongkong & Shanghai Banking Corporation	300,000.00
Telegram Deposit	175.00
	317,865.41
Cash	
In hand Tls.	104.66
On Current Account with Hongkong & Shanghai Banking Corporation	84.137.90
	84.242.56
Tls.	6,767,756.22

Shanghai, 16th June, 1908.

Jas. H. Osborne,
Secretary.

John Prentice,
David Landale,
C. Michelau,
R. S. F. McBain,
H. A. J. Macray,
A. M. Marshall,
James Johnston,
Directors.

We have examined the above Balance Sheet with the Books and Accounts of the Company for the year ended 30th April, 1908. The stocks of Materials and Machinery, Plant and Tools have been certified by the Secretary and Manager respectively; practically no depreciation has been provided on the Company's Assets, but we are informed that same have been efficiently maintained out of revenue. Subject to this,t he above Balance Sheet is, in our opinion, a full and fair Balance Sheet properly drawn up so as to exhibit a true and correct view of the Company's affairs as shown by the Books of the Company.

J. E. Bingham,
F. I. A. (N. Z).
F. N. Matthews, C. A.,
Auditors.

FAREASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

TIENTSIN-CHEFOO CABLE.—The break in this line was located last month near Chefoo and repairs were promptly made.

F. M. S. MOTOR SERVICE.—The service connecting Ampang and Kuala Lumpur, recently discontinued, has been renewed.

TIENTSIN ELECTRIC'S NEW HOME.—The new office building of the staff of this company was occupied at the first of the month.

KEIHIN ELECTRIC RAILWAY EXTENSION.—The Japanese government has sanctioned the extension of this line from Shinagawa to Aoyama.

CHINESE NAVY INSTALLATIONS.—An order has been placed with Messrs. Wilks & Jack for a complete electric installation for another Chinese gunboat.

MANILA ELECTRIC LIGHTING.—The city of Manila increased its estimate for lighting for 1908-09 to $100,000 against $50,000 the previous year. This sum was to provide for the installation of 480 arc lights.

RANGOON ELECTRIC COMPANY.—This organisation has just completed its second year with the announcement that the street lighting system and the final section of the tramway track have been installed.

SHINTATSU TRAMWAY COMPANY.—This line connecting Fukushima and Jisska and built by the Shintatsu Tramway Co. was inaugurated on June 1st. The company has been incorporated with the Dai Nippon Tramway Co.

CHINESE TELEGRAPHS.—The administration has ordered all the land lines in Honan and Chili, connecting Hsinyangchou and Paotingfu, to be shifted so as to run parallel with the route of the Peking-Hankow Railway.

RANGOON MOTOR SERVICE.—Permission has been granted the firm of Messrs. P. Michael & Co. of Rangoon to put in a motor service for the transportation of goods between the go-downs and wharves. A 30-h. p. car will be used.

SHANGHAI-TIENTSIN CABLE.—The Great Northern Telegraph Co. found the break in the cable about 8 miles from Shanghai and repaired it, last month. It appears that about half-a mile of cable had been cut out and stolen.

PEKING ELECTRIC TRAMWAYS.—A foreign company has made application to the government of Peking for a franchise to install an electric railway system at Peking with provision for its redemption by the government at the end of 10 years.

CHEFOO-PORT ARTHUR CABLE.—According to an agreement between Tokyo and Peking the cable between these two points will be the joint property of the two governments, the Chinese collecting all the tolls at the Chefoo end and the Japanese doing likewise at the Port Arthur end.

SINGAPORE-JOHORE CABLE.—Superintendent Bucknell of the F. M. S. Telegraphs and Telephones is in charge of the laying of the cable between these two points under the straits. Linked with the land wires, connection will be effected between Penang and Singapore by the peninsular through line.

FENGTIENG TELEGRAPHS.—According to the agreement between the Japanese and Chinese governments, the Japanese telegraph line must be installed along the South Manchurian Railway only and the Chinese language must be used exclusively in the transmission of messages in the trading ports of Manchuria.

MUSASHI ELECTRIC RAILWAY.—The work of construction has commenced on the new line that is to connect Hiroso, Tokyo, and Harasuma and it is expected to be finished before the exposition. In addition to the line just mentioned, the company has been granted a charter for the construction of a branch line connecting Chofu and Kamata via Ikegama.

ANGLO-JAPANESE GENERATING COMPANY.—On May 29th a meeting of the promoters of this extensive scheme which has been hanging fire was held at Tokyo and it was given out that arrangements for financing the project were concluded. The British capitalists will put up over eleven millions and the Japanese six millions. The company has completed a contract to supply power to many enterprises including the city of Tokyo.

CHINESE TELEGRAPH MATERIAL.—The Peking government has decided to establish a factory at Tientsin for the manufacture of materials required for the extension of the Chinese telegraph service. With the nationalization scheme, it is estimated that over 10,000 miles of line will be included in these extensions. The first extension in the south starts at Szemao and will be carried to Hokou, Kwangnan and Kaifu, in the Yunkewei provinces.

UNDERGROUND WIRING IN MELBOURNE.—The city of Melbourne has appropriated £48,000 for constructing conduits for the purpose of placing all telephone and telegraph wiring underground. The tunnels will be bored 25 feet below the surface of the streets so as to be clear of electric light cables, gas, water and sewerage pipes. They will be 6 ft. 6 in. high and 4 f. 6 in. wide so that workmen will have easy access for repair work, says the *Australasian Hardware Journal.*

TELEPHONE TENDERS INVITED.—The Postmaster General of Western Australia has advertised for bids on the following, which will be opened September 7th: 1 common battery switchboard of nine sections in all (for Fremantle), together with all associated frames, racks, power plant, and parts, as per specification No. 204; 650 telephone wall sets, 150 telephone table sets, 800 protectors, 90 extension switch and bell sets (complete), 30 switchboards for four lines, 20 switchboards for six lines, 5 switchboards for 12 lines, 5 switchboards for 24 lines, 20 telephone wall sets for party lines, 10 telephone table sets for party lines. Tenderers must state the country in which the articles tendered for have been made or produced, and, in the case of manufactured articles, where the material has been made or produced.

RAILWAYS AND RAILWAY SUPPLIES.

HONAN RAILWAYS.—The Pien-Lok Railway in Honan was opened to traffic on June 13.

HOKUYETSU RAILWAY.—The purchase price of this line has been fixed at 7,186,000 yen.

GOYU-TOKOHASHI RAILWAY.—The doubling of this line was completed in time for the opening to traffic June 1st.

HITOYOSHI RAILWAY.—The line between Hitoyoshi and Yatushiro was opened to traffic by the government on June 1st.

NAKATSU-SAKASHITA RAILWAY.—This new line of the Central Western system of Japan will be completed by the middle of July.

CANTON-HANKOW RAILWAY.—The most difficult part of the Southern section of this line, that as far as Mongfukong, has been surveyed.

TSITSIHAR-AIGUN RAILWAY. The survey of this route is under way and it is estimated that construction may begin next spring. It will take over four years to complete the road.

SOUTHERN MANCHURIAN RAILWAY LOAN.—The amount raised by the floating of the loan for £2,000,000 will be spent reconstructing the Mukden-Antung line and the Kirin-Changchun line.

SHANGHAI-SOOCHOW-NINGPO RAILWAY LOAN.—The Chinese 5% railway loan has been oversubscribed and the closing price showed three-quarters of one per cent. premium. This issue was for £1,500,000.

HONAN RAILWAY ENTERPRISE.—Two new lines are being agitated by the natives of Kaifengfu, Honan, one to connect that city with Chinanfu in Shangtung, and the other to connect with Chengtingfu.

HOANGHO RAILWAY BRIDGE.—It is not improbable that this river will be bridged by the Pukow-Tientsin Railway at Ai-shan opposite Waishan where the river is about two li broad with an average depth of 20ft.

KALGAN-KULUN RAILWAY.—The extension of the Peking-Kalgan railway from Kalgan to Kulun and thus connect the capital with Mongolia by rail has been the subject of favorable discussion by the authorities at Peking.

SEOUL-FUSAN RAILWAY.—On the 30th of June the government of Japan will turn over to the administrators of this company public loan bonds to the amount of 20,123,800 yen, the price of the railway as appraised by the centralization board.

SOUTH MANCHURIAN RAILWAY.—The Pullman coaches arrived for this road during June and it is expected that by August American trains comprising first class coaches, sleepers, dining and parlor coaches will be running regularly over the line.

TSINPU RAILWAY SURVEY.—According to the *Peking and Tientsin Times* the price asked by the German engineers for the plans and specifications of this line has been considered exorbitant and China proposes to make new surveys. The price asked was Tls. 200.000.

SHANGHAI-HANGCHOW RAILWAY.—If the construction continues without any delays the line will be completed next winter, according to the best expert advice. The section to Chang-an is expected completed by the end of this month and to Kiahsing early in the fall.

JAVA RAILWAYS.—The Dutch government has appropriated the sum of twenty million guilders to be expended in railway extensions in the colony and it is expected that when completed, the distance between Batavia and Sourabaya will be lessened by one day's travel.

TIENTSIN-PUKOW CONSTRUCTION. The sites for the railway depots at Pukow have been selected and construction will begin in August. The Tientsin depot will be constructed near the depot of the Imperial Railways of North China and the shops and warehouses in the same locality.

JAPANESE IMPERIAL RAILWAYS.—Statistics show that the government railways of Japan employ 39,427 vehicles. The figures include 1,919 locomotives, 4,989 passenger cars, and 30,841 freight cars. Besides these there are 1,427 cars for construction use and 551 private cars for oil conveyance.

CANTON RAILWAY CONSTRUCTION.—The contract of the Canton government to construct the Canton-Whampoa Railway and the Waichow Chinchow Railway is not being fulfilled as anticipated. The work on the Chinese section of the Hongkong Canton section is the only evidence of activity to date worthy of note.

PEKING-KALGAN RAILWAY.—Taotai Chan Tien-yu, chief engineer in charge of construction of this line, reports that he expects to complete the line in 1909. The tunnel near Chu-yungkuan is expected to be finished in the fall. The steel and bridge material will soon be delivered at Nankow. Russian material will be used.

INDIAN RAILWAY ACTIVITY.—The estimate of £20,-000,000 for the annual expenditure is meeting with favor by the Indian Railway Committee and the London *Times* remarks that the expenditure is not only justifiable but that the construction of 100,000 miles of railways in India would not suffice for future requirements.

TIENTSIN-PUKOW SURVEY.—The director general and the chief engineer is now busy on the survey of this line and will pass through Chuchow, Ting-yuen, Fengyang, Lingpih and Suchow, all in Anhui province; then through Hsuchow-fu, Hsiaohsien, and Tungshan in Kiangsu; and to Yihhsien and Hangchwang in Shantung.

TRANS-SIBERIAN RAILWAY.—Cabled advices from London state that the Duma has almost unanimously approved the scheme to double the line from Omsk to Karytska and 24,000,000 roubles are made available for that purpose. Authority is also extended to increase the rolling stock to a capacity of forty trains daily over the extended system.

SHANGHAI TO NEWCHWANG DIRECT.—Arrangements have been made with the Imperial Railways of North China whereby the Chinese Engineering & Mining Co., Ltd., may issue tickets direct from Shanghai to Newchwang and the company announces that the most direct route to Peitaiho is via Chinwangtao at which port their steamers call regularly.

AMOY RAILWAY.—The construction of the road connecting Amoy and Chiang-chin, a distance of 30 miles, is not progressing as rapidly as anticipated. One correspondent writes that at the present rate of progress it will take about twelve years to complete the work. The entire project is being supervised by Chinese and the capital is exclusively Chinese.

SHANTUNG RAILWAYS.—The branch line connecting Chi-chia-chwang and Te-chow and incidentally the Tsinpu line and the Luhan line will be constructed by French and Belgian contractors and upon its completion it may be extended as far as Taiyuanfu making direct connection from the Shansi capital to Kiaochow. The cost of the first section referred to is estimated at three million taels.

BURMA RAILWAY EXTENSION.—According to *Railways*, the Burma government will shortly authorize the construction of an extension of the Henzada- Bagayet line *via* Donabyu which, when completed, will traverse a distance of 94 miles. The proposed extension will be an improvement of the East Dagaloop Railway and there will be a branch from Donabyn to Pantanaw of about 24 miles. The extension will commence at Henzada, 85 miles from Bassein. There will be altogether 229 bridges of all finds, 24 being classed as major bridges, the most important on the line being one over Akyab river, which is estimated to cost about a lakh of rupees. The whole project, the Henzada, Donabyu, Bagayet and Donabyu Pantanaw lines, is estimated to cost Rs. 83,00,000.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

PEKING WATER TOWER.—The water tower for the Peking waterworks outside Teng Chi Men is now under construction.

BANGKOK DOCKS.—The Bangkok *Times* states that this company has booked over Ticals 250,000 of contracts during the first half of the year.

AMUR RAILWAY BRIDGE.—It is reported that the bridge proposed to span the Amur river for the Amur railway will be the longest of its kind in the world and will cost 5,000,000 roubles.

FOOCHOW DOCKYARD.—The scheme is on foot to extend and improve the Foochow Dockyard with a view to put the plan in shape so that China may build the ships of her new navy here.

SEOUL WATERWORKS.—The tests of the water supply system for fire protection has been successful. The water was turned on all over the city the latter part of April and there has been a steady demand for connections.

BATAVIA HARBOR IMPROVEMENTS.—Plans have been concluded for the expenditure of 6,500,000 guilders in the deepening of the harbor at Tanjong Priok, the lengthening and broadening of the quays and the construction of a new railway station.

ZAMBOANGA WATERWORKS AND ELECTRIC LIGHTING.—A company is being formed, says the *Zamboanga Herald*, for the purpose of installing a water supply and generating plant to provide Zamboanga with water and lighting. The capital stock is ₱200,000.

FOOCHOW DOCKYARD.—Plans are being considered at Peking providing for the extension and the improvement of the equipment of the dockyard there with a view to having the greater portion of the warships for the new navy built there by the government.

New Bangkok Dockyard.—A number of Siamese officials and Chinese merchants are reported to be interested in the promotion of a company having for its object the installation of a large shipbuilding and repairing plant at Bangkok. The management will be European.

Tsingtau Observatory.—The German government has appropriated $100,000 to be expended in the establishment of a new meteorological and astronomical observatory at Tsingtau which will be equipped and be kept in touch with the observatories at Shanghai, Hongkong and Manila.

Osaka Iron Works Company Docks.—This company has completed plans for the construction of a drydock of a capacity to accommodate steamers of 8,000 tons and which will be completed in less than three years. This dock will be located at the mouth of the Ajkawa River near the Sakurajima yard, Osaka.

Tarien Docks.—The Kawasaki Dock Company has taken over the old Russian docks at this point and proposes to equip it with the latest machinery so as to accommodate vessels of 6,000 tons. About yen 800,000 will be expended by the company in this direction. The company will also instal large iron and steel works there.

Moji Dry Dock.—The government has granted permission to the Franco-Japanese Syndicate to construct a pier at Moji and dredge the harbor to accommodate vessels of 20,000 tons and also to install machinery for unloading and loading coal and other freight. The syndicate has received permission to construct a drydock at that point.

Dredging Grand Canal.—It is proposed to spend 600,000 taels for the proper dredging of this important waterway and the building of substantial embankments over the entire length of 240 miles, the cost to be borne by the provinces of Chihli and Shantung. The purpose is to make the canal available for launches and small steamers to carry freight and mails as well as passengers between Kiangsu and Chihli.

Yokkaichi Harbor Improvements.—A scheme is under consideration for the construction of a breakwater at Asahi Point and to deepen the harbor to an average of 25 feet, the estimated cost of which is about 1,000,000 yen. This work will take over six years to complete. The municipality of Yokkaichi contemplates reclaiming a large part of the foreshore and the construction of a short railway in connection with the improved port.

Floating Docks at Kobe.—Two more large floating docks are to be built at Kobe. One now under construction by the Mitsui-Bishi Yard at Wada will accommodate a vessel of 10,000 tons, while the Kawasaki Dockyard has a scheme on foot to build a floating dock that will take a steamer of 15,000 tons. This will be set up off the company's timber yard adjacent to the Kawasaki Customs landing-place. There a breakwater about 1,000 feet long will be constructed to protect the floating dock. Application has already been made to the Kencho for a charter to enter upon work of reclamation there as required for the construction of the dock. The steel used will be obtained from the Kure Naval Arsenal, and the rest of the materials will be made at the dockyard.—*Yokohama Journal of Commerce.*

SHIPBUILDING, GENERAL MARINE AND FISHERIES.

Kamo Maru's Trial Trip.—This vessel recently launched by the Mitsu Bishi Dockyard made her first steam trial, June 10th.

Kiaochow Fishing Industry.—One week's work last month resulted in 500,000 pounds of fish being caught, dried and salted for the Shantung interior trade.

Morgui Fishing Banks.—A Rangoon company has made application for a concession from the Burma Government of the oyster banks at these islands.

Foochow Fisheries.—The present concession is held by Japanese and the announcement has been made that, at its expiration, no further rights will be extended foreigners.

Liao River Motor Service.—Eight motor boats to be used in navigating the Liao River were recently received and put in operation by the Chinese officials at Newchwang.

Marine Invention.—The Tenyo Maru is testing an apparatus invented by Captain Makimura, designed to indicate in advance possible dangers arising from the bottom of the sea.

New Australian Line.—The government of New South Wales has advertised for tenders for the establishment of a line of steamers between Sydney, Melbourne and Shanghai.

Canton-Kowloon Railway Lighters.—Two lighters are under construction at Messrs. Wilks & Jack's yards at Taikoktsui. This firm recently supplied four lighters for the British section.

New Steamer for Macao Run.—The Hongkong, Canton and Macao S. S. Co. has purchased the steamer Hoi Sang from Chi Wo & Co., the latter agreeing to retire their other steamers from this run.

U. S. A. Transports.—The United States government has purchased the steamers Shawmut and Tremont of the Boston line and these vessels will be used in connection with the construction of the Panama Canal.

Chefoo S. S. Co.—A company has been organized at Chefoo for the purpose of instituting a steamship service connecting that port, Korean and Japan ports and Vladivostok. The vessels are to fly the Chinese flag.

Siamese Torpedoers.—The four torpedoers ordered by the Siamese government and constructed by the Kawasaki Dockyard of Kobe are expected ready for sea this month. The last vessel was launched June 12th.

Dalny's Shipping Trade.—The number of vessels which entered the port of Tairen during May was 148, with a total tonnage of 192,388. Of these, 119 were Japanese, 12 Chinese, 11 British, 4 Norwegian, and 2 German.

Siamese Nobles to Study Shipbuilding.—The King of Siam has sent nine Siamese princes and nobles, including his younger brother, to Kobe where they will study in the morning and work in the Kawasaki Dockyard in the afternoon, each day.

Two New Japanese Ports.—The newly opened ports of Yakkaichi and Shimidzu have been placed on the list of ports of call of the Portland and Asiatic S. S. Co. The Arabia sailing from Hongkong last month for Portland was the first to make these two ports.

New Korean S. S. Co.—The South Korean Steamship Co. is the name of an organization being promoted for the purpose of engaging in the coastwise trade of southern Korea. The promoters have asked the Korean government for a subsidy of 30,000 yen annually for three successive years.

Hongkong Maru Floated.—This vessel which went ashore on the mud bank off Block House Island near Shanghai, June 9th, was refloated successfully and towed to safe anchorage at Woosung June 16th. No indications of serious damage could be found, but she was sent to Nagasaki to be docked.

Japanese Sardines.—The export trade of sardines from Japan did not exceed 30,000 yen in value last year but there is noted an ever increasing demand for the product in America. The Japan Canning Co. of Nagoya has been in successful operation in this line for several years and the management is greatly encouraged.

American Turbines for Japanese Navy.—Four steam turbines of 12,000 h. p. each have been ordered by the government from the Foreshore River Shipbuilding Company of Quincy, Mass. Two of these will be installed in 23 knot cruisers now under construction and the other two are for battle ships to have a speed of 21 knots.

O. S. K. S. S. Co and Chicago, Milwaukee & St. P. R. R.—A tentative agreement has been entered into between these two companies for connecting services and the contract will go into effect in 1910 when the six 6,000 ton steamers will be completed and the Osaka Shosen Kaisha will put them on the run between Japanese ports and Tacoma.

Philippine Pearl Fisheries.—The Moro province has passed an act providing that no license shall be issued to any pearling outfit to operate within the three marine league limit of the coasts of the Moro province, unless the vessels are owned by American citizens, citizens of the Philippine Islands or those who have secured the political rights of natives or to vessels owned by Philippine corporations.

MINES, MINERALS AND THE METAL TRADE

May Tin.—The highest price paid for tin in Perak in May was $71.625 a pikul.

Standard Oil Company.—This company has expended ₱7,000 in the purchase of a site for warehouses on Mactan Islands, Cebu.

German-Chinese Mining Co.—A company has been formed of German and Chinese capital to develop the coal fields in Chingking, Chilhi.

Sungei Raia Installation.—The *Times of Malaya* announces that a dredging plant is in the course of erection on this property and it is expected to be in operation by the end of August.

Kiminoshan Coal Mines.—Coal of a superior quality has been discovered near Kalgan and the fields which are owned by the Peking Kalgan Railway will probably be developed by that company.

Tientsin Cement Manufacture.—Experts have been sent to Tientsin by the Peking authorities to experiment with the soil there with a view to making a report on its adaptability to the manufacture of cement.

Turbet Silver Mines.—The attempt of the Russians to develop this valuable Mongolian property is meeting with opposition. The Imperial Resident has been notified by Peking to refuse permission to the Russians.

Burma Mines, Railway and Smelting Co., Limited.—This company expects to place slag, ore, etc., on the market at an early date and arrangements have been concluded with the Burma Railways for special transportation facilities.

Shantung Mining Society.—This organization has made application to the Peking government for mining rights covering a belt of country extending 30 li on either side of the Tientsin-Pukow Railway line from Hsien to Ichow-fu.

Ichow-fu Coal Fields.—A company is being promoted by Chinese officials for the purpose of developing the coal deposits about ten miles south-west of Ichow-fu and to build a railway for the transportation of the product to the port of Hai-Chew.

German New Guinea Gold.—Reports of rich deposits of gold have been received from this section and also in the Dutch section. Development by private enterprise is not encouraged by the governments interested and there is little promise of much activity.

Fushan Colliery.—The report of the Manchurian Railway contains the information that the railway consume 22,000 tons of coal a month from those mines, the total output being 33,000 tons and it is expected at an early date to increase the output to abont 50,000 tons a month.

Tungkwanshan Mines.—An effort is being made by the Anyu Mining Company and the Mitsui & Co. to reach an agreement for the joint development of these iron mines. There are some complications over the original concessions, the native of Anwei being opposed to concessions to foreigners.

Siam Mines and Mining.—Advices from Bangkok state that expert report on the possibilities of the mining industry in the Siam dependencies is exceptional and the rich deposits offer splendid opportunity for exploitation as soon as better transportation facilities are available in the mineral regions.

Shansi Ironworks.—The governor of Shansi province and the authorities at Peking are considering the establishment of large iron works in this province with a view to developing the iron and coal deposits and with a view to providing the country with finished product in steel and also coal for railways and steamship companies.

Mindoro Placer Mines.—A prospector from the island of Mindoro, Philippine Islands, reports valuable placer deposits about 30 miles from the pueblo of Calapan and about 1,000 feet above sea level, on the Banaby River. Samples were received at Manila last month and report also of indications of iron, platinum and silver in the geological formation.

Namboku Oil Company Plant.—The refinery of this company has been completed at Yokohama. The compound covers 20,000 tsubo of which 800 tsubo is covered by the building. Nine boilers aggregating 445 h. p. have been installed and 30 distilling kettles with a capacity of 11,200 koku of oil together with twelve tanks for refined oil each of a capacity of 250 koku, complete the equipment.

Australian Iron and Steel Manufacture.—The Eskbank Ironworks has been experimenting on the manufacture of steel from pig iron produced locally and the company has ordered several machines and engines from England and America to perfect this department and, with their installation, success is expected. The *Hardware Journal* announces that the operations for the last few months have been at a loss on account of the lack of proper equipment.

FINANCIAL AND MISCELLANEOUS

West Australian Grapes.—A large consignment of grapes recently received in London brought 96 shillings a cwt.

British Beer Breweries Co.—The machinery for the installation of this company's plant at Singapore arrived last month.

Open Port of Kalgan.—The Grand Council has decided to make Kalgan an open port as soon as the Peking-Kalgan Railway is completed.

Kiaochow Parcel Post.—The new parcel post service to this point by sea direct via Hongkong is now two shillings for parcel not exceeding 3 pounds.

Kiaochow Subsidiary Coins.—The issue of small German coins for circulation in this section has been authorized. This issue will include nickel c. 5 and c. 10.

New Newchwang Hotel.—The completion of the New Astor House at Newchwang this fall will give this section one of the most modern hotels in North China.

Java Timber Concession.—The Borneo company has secured a large timber concession in the province of Rebang, Java, which covers a period ending August 31, 1915.

Tonkin Paper Manufacture.—A company has been floated in France for the purpose of establishing a paper mill on a site secured at Phulang-thuong. An expert is now on the ground.

American-Japanese Trade Mark Convention.—The ratification of the convention was expected by latest advices from Tokyo, to be received and ratified at Tokyo about the first of July.

Japan-China Bank.—The organization of this bank is meeting with encouragement among Japanese bankers and it is believed will be successfully promoted. It will have a capital of 2,000,000 yen.

Japanese in Mongolia.—A party of 200 surveyors under the direction of two Japanese military officers have been engaged during the last year in making surveys of Inner and Outer Mongolia.

Perak Imports and Exports.—The report for the first three months of 1908 shows a decrease of $650,000 in imports, and a decrease of $1,785,304 in exports compared with the corresponding period, 1907.

Formosan Sugar Mill.—Messrs. Bain & Co. of Anping, Formosa, are promoting a company with a capital of Yen 50,000 for the purpose of establishing a sugar mill with a capacity of 100 tons a day at Bokushikaku in Kaga province.

Japan-Korea Gas Company.—This company is being promoted with a capital of 3,000,000 yen. The promotors have secured options on sites at Seoul and Yongsan at reasonable rentals and the government has offered to assist the company in every way.

Japan's Tea Crop.—Some damage to the crop is reported, but the exports to date have been double that of last year although the quality is slightly inferior. It is believed that the year's crop will exceed in quantity, the 30,000,000 kin exported in 1907.

Chinese Tea Export.—The *Hankow News* states that there is a shortage in tea export for the year. Up to the early part of June, 383,352 half-chests of Hankow teas have been on the market as against a total of 386,000 for last year, and 175,949 Kiukiang teas against a similar total of 180,000.

Printing Chinese Bank Notes.—The Peking authorities have authorized the establishment of a printing office for the issue of bank notes and other work for the Chinese government. It will be under the direction of the director of the National Bank of China and notes in taels and dollars will be printed.

Empire Hemp Manufacturing Co.—This organization which was formed by the amalgamation of the leading factories of Japan report for the half-year ended December 31st, 1907, that the company turned out 1,980,475 yards of hemp and 2,894,863 pounds of hemp cord. The receipts for the term amounted to 2,140,194 yen.

Rubber Growers Protest.—The increase of freight rates from Singapore from 50s. to 60s. a ton imposed by the Homeward Shipping Conference as well as the increase on through rates from Port Swettenham from 65s. to 75s. on rubber shipments has been made the subject of a protest by the Malaya section of the Rubber Growers' Association.

Sarawak Financial Statement.—The Gazette announces the revenues and expenditures for 1907 as $1,441,194 and $1,359,273 respectively. Of the expenditure, $500,000 was expended in maintaining the civil list and $337,000 on public works and surveys. Of the latter, $87,000 were spent on roads and $62,000 for waterworks. A loss was shown in the operation of the Brooktown and Sadong Collieries as well as on the plantatoins. The public debt of $413,000 showing in the report of 1897 has been wiped out and a surplus is announced of $81,921 for 1907.

AMERICA-MANCHURIA STEAMSHIP LINE

The steamer Katuna of the new line of steamers connecting New York and Dalny via Suez, Colombo, Singapore, Manila, Kobe, Yokohama and Muroran sailed from New York February 28th. A sufficient number of steamers will be put on this line to provide a fortnightly service. They will carry passengers and freight.

*LONDON, ENGLAND, METAL MARKET

May 29, 1908.

COPPER	£	s.	d.	£	s.	d.
* Tough cake and ingot	61	0	0	.. 62	0	0
* Best selected	61	0	0	.. 61	10	0
* Electrolytic	61	10	0	.. 62	0	0
* Sheets and sheathing	71	0	0	..	—	—
* Flatbottoms	74	0	0	..	—	—
STANDARD †Cash	57	12	6	.. 57	15	0
STANDARD †Three months	58	2	6	.. 58	5	0
* Copper tubes, seamless per lb.	0	0	9	..	—	—
* Lake	61	10	0	.. 62	0	0
* Less 3½ per cent.	† Net.					
ALLOYS.						
Brass: Wire	0	0	6½ ..		—	—
,, Tubes (solid drawn)	0	0	7 ..		—	—
,, Sheets	0	0	6¾ ..		—	—
TIN.						
English ingots, f.o.b	180	0	0	..131	0	0
,, bars	131	0	0	..132	0	0
,, refined	132	0	0	..133	0	0
Straits... Cash	129	0	0	..129	5	0
Straits... Three months	128	0	0	..128	5	0
Australian spot	129	0	0	..129	10	0
Banka (in Holland) Cash	129	7	6	..	—	—
Banka (in Holland) Three months	127	15	0	..	—	—
LEAD.						
Spanish or soft foreign	12	16	3	.. 13	3	9
English pig, common	13	0	0	.. 13	5	0
,, L. B.	13	10	0	..	—	—
,, sheet and bar lead	14	0	0	..	—	—
,, pipe	14	10	0	..	—	—
,, red	16	0	0	..	—	—
,, white	18	0	0	..	—	—
,, patent shot	16	0	0	..	—	—
SPELTER.						
Silesian ordinary brands	19	10	0	.. 20	0	0
,, special brands	20	0	0	.. 20	5	0
English Swansea	20	5	0	.. 20	15	0
Sheet zinc	23	10	0	..	—	—
ANTIMONY.						
Antimony Regulus	34	0	0	.. 36	0	0
,, Crude	14	0	0	.. 15	0	0
,, Ore (basis 50%)	—	—		..	—	—
QUICKSILVER.						
Flasks, 75 lbs. warrants	8	2	6	..	—	—
MANGANESE.						
Ore, c.i.f., U.K. ports	Per unit.			Per unit.		
1st quality, 50 per cent and upwards	0	0	10	..	—	—
2nd quality, 47 per cent. to 50 per cent.	0	0	9	..	—	—
3rd quality, 40 per cent to 47 per cent.	0	0	8	..	—	—
ALUMINIUM.	Per lb.			Per lb.		
98-99¾ per cent	0	1	0	.. 0	1	3
NICKEL.	Per ton.			Per ton.		
98-99 per cent. guaranteed	180	0	0	..190	0	0

PLATINUM.

Per oz. Troy, 110s. to 90s; nominal and subject to negotiation.

* *Mining Journal.*

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

Article	Unit	U. S. Currency.
Abrasives.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
Acids —		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18.00
Aluminum, Sulphate Com'l	lb	1.10-1.75
Antimony, needle	"	.04½-.05
Arsenic, white	"	.04-.045
Asphaltum.—		
Trinidad	ton	28.00-30.00
California	"	21.00-27.00
Bleaching powder, 35%	100 lb	1.25-1.00
Blue Vitriol	"	5.00
Bone Ash	lb	.02½-.04
Borax	"	.045-0.525
*Caps detonating	M	6.00-7.50
Cement.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.65
*Alsen		2.75
Clay, China.—		
American common	lg. ton	8.50-9.00
Foreign	"	10.00-17.50
Coals.—		
*Batan at Mines		3.00
*Australian		5.50
Copper	lb	.12½-.13
*Dynamite 40%	"	.20
Felspar ground best	sh. ton	10.50-15.00
Fire Brick, American	M	30.00-40.00
Imported	"	30.00-45.00
Fire clay, St. Louis Mill	ton	2.50
*Fuse-Blasting	1,000 ft.	6.00-7.50
Graphite—Ceylon, finest to best	lb	.01-.04
Lump	lb	.04-.10
Gypsum-Fertilizer	sh. ton	5.00
Powdered	sh. ton	4.00-7.00
Lead	lb	.04-.041
Magnesite-Greece, crude, 95%	lg. ton	8.00-10.00
Bricks, domes	per M	160-200
Manganese, 90-95%	lb	.06½
Ore, 80-85%	sh. ton	13.00-40.00
Mercury, export flask	75 lbs	45.00
Paints and Colors.—		
Litharge American P'w'd	lb	.06½-.06¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.58
White lead, Am. dry	lb	.05¾-.06
Am. in Oil	"	.06½-.06¾
Zinc, white, Am. extra dry	"	.05⅜-.05⅝
Phosphates, Acid	per unit	.65-.70
Florida hard rock	lg. ton	10.25-10.50
Land pebble 68%	"	4.00-4.25
Potassium Cyanide (98-99%)	lb	.18-.19
Platinum Hard	oz	26.00
Platinum, Scrap	oz	16.00
Spelter	lb	.046-.047
Nickel	lb	.45-.50
*Powder, black blasting A	lb	.1½
*Judson	"	.14½-.15½
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½-.13
Imported, arsenical	" "	.12-.12½
Saltpeter crude	100 lbs	4.50-5.00
Silica, Lump quartz	lg. ton	5.00-6.00
Ground quartz, ordinary	"	10.00-15.00
Glass sand, ordinary	"	2.75
Silver	oz	.53½-.54
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22.00
Roll	100 lbs	1.85-2.15
Flowers sublimed	"	2.20-2.60
Talc—Domestic	sh. ton	15.00-25.00
Italian, best	"	35.00-40.02
Tin	lb	.31½
Zinc, at Mines	ton	34.00-36.00

*Manila quotation.

HEMP STATISTICS, 1st JULY, 1908.

(Courtesy of C. S. Nicholson, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 30th June 1908		346,540 *Bales*
Arrivals of hemp at Cebu up 30th June 1908		131,894 *Bales*
		478,434 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales*
Total		607,793 *Bales.*
Export to all ports to date 30-6-08	451,027 *Bales.*	
Local consumption estimated at	2,400 "	453,427 *Bales.*
Total stocks at Manila and Cebu on 1st July, 1908		154,366 *Bales.*

EXPORT OF HEMP, JUNE, 1908.

Date	Vessel	London	L'pool	Atlantic U. S.	Pacific East & California	Continent	Australia	Other Pts.	Total Bales
June	Fwd:—	141,884	51,880	131,604	22,632	24,366	7,124	16,763	396,253
" 1	Taiyuan						400		400
" 3	Den of Aerlie	3,100				1,415			4,515
" 5	Yuensang							50	50
" 6	Keemun				570				570
" "	Zafiro					955		150	1,105
" 8	I. de Panay		750			272			1,022
" 10	Poona	3,373	4,280			692			8,345
" "	Tean							75	75
" 13	Rubi	4,000							4,000
" 15	Kaifong ...... Cebu		125			250		30	405
" "	Yawata Maru						500		500
" 16	Tremont				5,100				5,100
" 18	Tsinan						200		200
" 19	Zafiro					450			450
" "	Yuensang					50		150	200
" 20	Changsha							2	2
" "	Kabinga							114	114
" 21	Manila						200		200
" 22	Sungkiang...Cebu		25					22	47
" "	Prinz Waldemar							154	154
" 23	Tean							220	220
" 24	Empire							108	108
" 25	Muncaster Castle			12,438					12,438
" "	Loongsang					52			52
" 27	Rubi							300	300
" 28	Teucer	4 963	5,750			500			11,213
" 30	Tringuan.....Cebu					250			250
" "	Taming	823	1,050			866			2,739
		158,143	63,860	144,042	28,302	30,118	8,424	18,138	451,027

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for June, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 e $13,500,000 i $250,000	$2,000,387	31-12-07	Final of £2 on old and £1-10/- on new shares for ½ year ending 31-12-07	5½	$750 £78-10/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	8½	$235 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Interim of 7/6 ex 2/5¾ for 1907	6	Tls. 77½
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$790
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-07	$12 and bonus $3 for 1906	9¾	$152½ buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $346,097 f $13,802	$372,432	31-12-07	$6 and bonus $2 for 1906	8½	$92 buyers
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	$1,323,941	$428,047	31-12-07	$27 for 1906	8¾	$315 buyers
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$1.035	31-12-07	$1 for 1906	....	$15
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 s $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	11½	$37
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $575,000 f $ 75,279 $ 20,000	$16,437	31-12-07	$1½ for 2nd half year making in all $2½ for year ending 31-12-07	7¾	$29 buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 i £270,000	£3,694	31-12-06	5/- @ ex. 2-2⅜ = $2.24 per share for 1906	3¾	$40 buyers $20 buyers
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Final of Tls. 1¾ making Tls. 3½ for 1907	7¾ 7½	Tls. 44 soles Tls. 52 sales
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 s £1871	£172,370	31-12-06	Second Interim of 1/- (Coupon No. 9) for a/c 1907	4½	45/- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$25 $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 140,000 d Tls. 609,255 e Tls. 100,000 i Tls. 116,000 q Tls. 17,142	Tls. 6,869	31-12-07	Final of Tls. 2½ making Tls. 5 for 1907	12½	Tls. 49 sellers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $32,538 e $450,000 r $56,848	*Dr.* $279,371	31-12-07	$8 for year ending 31-12-06	....	$130
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $135,132	31-12-07	$3 for 1897	....	$ 22
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 4. (8%) for year ending 31-8-06	....	Tls. 82½
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £12,289	£11,556	28-2-07	Interim of 1/6 (Coupon No. 10) for a/c 1908	7¾	Tls. 15¾
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £11,358	31-3-07	No. 12 of 1/- = 48 cents	....	$7
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	....	$13
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 s $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	7	$50
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $68,699 v $150,000	$441,442	31-12-07	Final of $4 making $8 for 1907	7¾	$103
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100		Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	6	Tls. 82 sales
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	Tls. 1,000,000 b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Final of Tls. 9 making Tls. 17 for 1907	7¾	Tls. 220 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 101 sales
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	11	$20½ sellers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	....	$12 buyers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $7,000	$252,	31-12-07	Final of $3½ making $7½ for 1907	7¾	$95
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$36,915	31-12-07	Final of $3½ making $7 for year ending 31-12-07	7	$100 sellers.
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	⅞	$10 ½

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	When Established	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1⅜ for 1907	6½	$26½ sales
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 170,000	Tls. 107,547	31-12-07	Final of Tls. 3 & bonus of Tls. 2 making in all Tls. 8 for 07.	6½	Tls. 123 sales
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	6½	Tls. 90.
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Final of $2.10 making in all $4.10 for year endg. 31-12-07	8½	$48
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4½	Tls. 56 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	4½	$11 sales
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 62½ sales
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 82½ sales
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 245 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$7½
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	11	$10⅜
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6½
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3,593	31-12-07	80 cents for 1907	8½	$9½
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	6½	$20
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Final of 75 cents making in all $1¼ for 1907	11½	$10¾
H. Price & Co. Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12 buyers
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10½	$19½ sales
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	7½	$16
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,378	31-12-07	Final of $15 making in all $19 for 1907	8½	$225 buyers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	none	$8,191	31-12-07	Final of $1.20 making in all $2 for 1907	8	$25 buyers
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for second quarter	6½	Tls. 522½ sales
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$5.000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 4	$14 $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	6½	Tls. 113 sales
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 u Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	16	Tls. 88 sellers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 385 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $90,237	31-8-07	None	....	$23 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$478	31-5-07	40 cents for year ending 30-5-07	6⅔	$6
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97 sellers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	4½	$11
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders' shares for year ending 31-5-07	6½	$13
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 e $25,000	$6,438	31-12-07	Final of 3% = 30 cents making in all 60 cent. for year ending 31-12-07	6	$10 sellers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg. 31-7-07.	....	$150 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5 buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$500,000	$500	§ all	Half yearly, June 30th and December 31st	par.
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 102
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	101
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unissued.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government. Kuping Tls. 5,000,000.
19 12,000 issued only.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold cents 50 for year ended 30th June 1907	May 1908
Kiang-pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		T.s. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co, Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	——	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros, Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	——	—
Oriental Ice Company, Limited	Tls 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co, Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9 000	Tls. 25	Tls. 25	none	——	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	Dec. 11, 1907
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	——	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	——	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	——	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30.000	Tls. 10	Tls. 10	—	——	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	4% for half year ended 31 Oct. 1907	Dec. 17, 1907
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 4 for 1906	—
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	——	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	--	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Interim of 4% for 1907	Jan. 15, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 90	Tls. 50,0 0	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 95	,, 125,000	" 47,300	" 100	5½ ,,	Do
do	1894	,, 103	,, 105,000	" 60 000	" 100	6 ,,	Do
do	1895	,, 90	,, 115,000	" 110,900	" 100	5 ,,	Do
do	1896	,, 90	,, 140,000	" 135,700	" 100	5 ,,	Do
do	1897	,, 90	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 103	,, 300.000	" 60,000	" 100	6 ,,	Do
do	1900	,, 95	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 103	,, 250 000	" 200,000	" 100	6 ,,	Do
do	1902	,, 103	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 103	,, 490.500	" 490.500	" 100	6 ,,	Do
do	1904	,, 103	,, 214,500	" 214.500	" 100	6 ,,	Do
do	1905	,, 103	,, 320.000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 351,400	" 250	7 ,,	Mar. & Sept.
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 95	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 90	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250.000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 95	,, 100,000	" 100.000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 102	,, 100.000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 90	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 102	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 102	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 102	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 102	,, 100.000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 100½	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 90	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000.000	" 200,0 0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 102	,, 799,830	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures		,, 101	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 102½	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170 000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110.000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 100	,, 250,000	" 250,000	" 100	6 ,,	June & Dic.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, July, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	......	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	6.50	7.00	6.50
1907	$300,000	225,000	22,500*y*	10	10	......		Bruang Ltd.	6.25	....	6.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	12.00	13.50	12.00
1903	£400,000	350,000	350,000*a*	1	1	......		Duff Development Co., Ltd.	2.70	2.75	2.70
1907	$400,000	375,000	37,500*b*	10	10	......		Kanaboi, Ltd.	....	4.00	4.00
1901	£60,000	60,000	60,000	1	1	......	1/- interim for 1908	Kinta Tin Mines, Ltd.	9.50	9.75	9.50
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	3.25	3.75	3.25
1905	$150,000	99,000	9,900*c*	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	8.25	8.25
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	9.00	9.50	.900
1906	£30.000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	....	12/6	12/6
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	....	7.00	7.00
1906	£250,000	179,500	600,000*h*	5/-	5/-	......		Pahang Consolidated Co., Ltd.	25/6	26/6	25/6
			100,000	1	1	......		" " " 7% *Pref.*	....	....	nominal.
1907	£100,000	80,000	80,000*j**	1	1	......		Pengkalen, Ltd.	5.25	5.75	5.25
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.25	3.50	3.25
1907	$450,000	300,000	30,000*h**	10	10	......		Rahman Hydraulic Tin Mines, Ltd.	9.50	10.00	9.50
1905	£27,000	21,750	21,750*e*	1	1	......	1/- interim during 1907	Rambutan, Ltd.	5.50	6.00	5.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	4.75	5.00	5.00
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	4.75	5.00	5.00
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd.	....	0.50	0.50
1898	*Gs*2.500,000	2,500,000	25,000	100	100	......	71% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd.	....	....	885.00
1900	$110,000	110,000	22,000	5	5	......	10% for 1907	Royal Johore Tin Mining Co., Ltd.	0.85	1.00	0.85
1907	$500,000	500,000	50,000	10	10	......		Salak South, Ltd.	7.25	....	7.25
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	....	3.50	3.50
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd.	8.00	8.50	8.00
1899	$230,000	230,000	23,000	10	10	......	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	....	3.50	3.50
1907	£90,000	70,000	70,000*z*	1	1	......		Tekka, Limited.	8.25	8.50	8.25
1902	£160,000	149,185	149,185*f*	1	1	......	5/- during 1907.	Tronoh Mines, Ltd.	9.00	9.75	9.75
								RUBBER			
1905	£150,000	124,125	46,500	1	1	......	20% for year ending 31-12-07	Anglo-Malay Rub. Co., Ltd. *Fully paid*	....	3.16.6	3. 16 6
			103,500	1	17/6	......		" " " *Contributory*	3.5.0	3.10.0	3. 5.0.
1905	$200,000	126,000	12,600*g**	10	10	......	12½% interim for 1907	Balgownie Rub. Estate Ltd.	12.50	15.00	15.00
1904	£30,000	22,750	22,750*i*	1	1	......		Batu Caves Rub. Co., Ltd.	....	2.17.6	2. 17. 6.
1903	£70,000	66,700	66,700*j*	1	1	......	30% for year ending 31/3/08	Bukit Rajah Rubber Co., Ltd.	4.5.0	4.10.0	4.10.0.
1906	$150,000	125,000	12,500*k*	10	10	......		Castlewood Rubber Co., Ltd.	....	9.00	9.00
1904	£16,000	16,000	10,000	1	1	......	37½% for year ending 31-3-08	Cicely Rubber Estates Co., Ltd.	4.7.6	4.12.6	4. 12. 6.
			6,000	1	1	......	42½% for year ending 31-3-08	" " " " 5% *Pref.*	4.15.0	5.2.6	5, 2. 6.
1905	£75,000	55,000	55,000*l*	1	1	......	10% for year ending 31-12-07	Consolidated Malay Rub. Estates, Ltd.	2.0.0	2.6.6	2. 6. 6.
1906	£310,000	259,530	181,454*m*	1	1	8,784	12½% for year ending 31-12-07	Highlands & Lowds. Para Rub. Co., Ltd.	1.13.0	1.15.0	1. 13. 0.
			123,546	1	12/6	......		" " " " *Contributory*	....	1.2.6	1. 2. 6.
1906	£180,000	180,000	180,000	1	1	......	3% interim for 1907	Kuala Lumpur Rubber Co., Ltd.	1.0.0	1.1.0	1. 1. 0.
1907	£320,000	201,500	184,000*d**	1	1	......		Lanadron Rubber Estates, Ltd.	1.8.6	1.10.0	1. 8. 6
			70,000	1	5/-	......		" " " *Contributory*	10/6	11/-	10/6
1906	*Gs* 175,000	175,000	540	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	....	....	250
			160	250	250	......		" " " " " *Deferred*	....	....	250
1906	$250,000	225 000	22,500*n*	10	10	......		Ledbury Rubber Co., Ltd.	9.00	9.50	9.00
1895	£100,000	76,100	661,000*e**	2/-	2/-	......	20% for year ending 31-12-07	Linggi Plantations Ltd., *Ordinary*	9/	9.3	9/-
			10,000	1	1	......		" " " 7% *Pref.*	....	....	1. 0. 0
1906	£300,000	283,125	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	19/6	20/-	19/6
			140,000	1	1	......		" " *Ordinary*	8/-	9/-	8/-
			45,000	1	12/6	......		" " *Contributory*	....	....	nominal
1903	£30,000	20,000	20,000*o*	1	1	......	35% for year ending 31-12-07	Pataling Rubber Estates Synd. Ltd.	5.7.6	5.12.6	5. 12. 6.
1906	$250,000	225,000	22,500*b**	10	10	......		Ragalla Rubber Co., Ltd.	....	9.00	9.00
1904	£20,000	10.035	2,588*a**	1	1	......		Sagga Rubber Company Limited	....	....	2.10.0
			12,412	1	12/-	......		" " " "	....	....	....
1904	$100,000	99,000	990*k**	100	100	......	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	....	250.00	250.00
1898	£30,000	30,000	300,000	2/-	2/-	......	41% for year ending 31-12-07	Selangor Rubber Co., Ltd.	14/-	15/-	15/-
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd.	....	92.50	92.50
1905	$100,000	100 000	10,000	10	10	......	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	11/75	12.00	12.00
1906	£110,000	100,000	100,000*l**	1	1	......		Sungei Kapar Rubber Co., Ltd.	....	....	2. 5. 0
1904	£50,000	41,920	50,000 *p*	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	....	1.10.0	1. 10. 0
1904	£60,000	50,000	500,000*q*	2/-	2/-	......	25% interim for 1907	Vallambrosa Rubber Co., Ltd.	12/6	12/9	12/6
								GENERAL			
1894	£5,377.10.0	4,805	7,688*c**	12/6	12/6	1,500	15% for year ending 31-12-7	Bells Asbestos Eastern Agency, Ltd.	....	5.50	5.50
1898	$225,000	225,000	4,500	50	50	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd.	135.00	140.00	135.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000*t* 13,500,000*u* 250,000*v*	£2-0-0 on old and £1 10s 0d on new shares for half year ending 31-12-07	Hongkong & Shanghai Bank'g Corpt'n.	....	....	80 0. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd.	130.00	135.00	130.00
			6,000	100	....	......	7% for year ending 31-10-07	" " 7% *Pref*	....	120.00	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	....	130.00
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal.
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-07	Maynard & Co., Ltd.	....	19.50	19.50
1899	$875,000	875,000	6.000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	....	87.50	87.50
			2,750	100	100	......	7% for year ending 31/12/07	" " " " 7% *Pref.*	101.00	105.00	101.00
1903	$600,000	240,000	24,000*r*	10	10	......		Singapore Cold Storage Co., Ltd.	....	5.00	5.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd.	....	42.50	42.50
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	4/-	4/3	4/-
1904	$160,000	112,000	1,120*f**	100	100	11.200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	....	50.00	50.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	....	....	130.00
1890	$500,000	500,000	4,956*i**	100	100	400,000 458,925*w*	10% for year ending 31-12-07	Straits Steam Ship Co., Ltd.	190.00	200.00	190.00
1904	$40,000	$35,350	2,535*s*	10	10	......		Straits Tobacco Factory, Ltd.	....	2.50	2.50
			1,000	10	10	......		" " " "	....	....	nominal.
1887	$3,000,000	3,000.000	300,000	10	10	1,200,000 1,197,409*x*	10% & 5% bon. for half yr. end. 31-3-08	Straits Trading Co., Ltd.	49.50	50.00	49.50

a 50,000 unissued	*n* 2,500 unissued.	*a** 5,000 unissued.
b 2,500 "	*o* 10,000 "	*b** 2,500 "
c 5,100 "	*p* 8,080 "	*c** 916 "
d 20,000 "	*q* 100,000 "	*d** 66,000 "
e 5,250 "	*r* 36,000 "	*e** 239,000 "
f 10,815 "	*s* 465 "	*f** 480 "
h 100,000 " *Ord.*	*t* Special Gold Reserve Fund	*g** 7,400 "
h 45,500 " *Pref.*	*u* Silver Reserve Fund.	*h** 15,000 "
i 7,250 "	*v* Insurance Fund.	*i** 44 "
j 3,300 "	*w* Sundry Reserves.	*j** 20,000 "
k 2.500 "	*x* Sundry Reserves.	*k** 10 "
l 20,000 "	*y* 7,500 unissued.	*l** 10,000 "
m 5,000 to be issued to employees	*z* 20,000 "	

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	par.	3%	3% prem.
Riley, Hargreaves & Co., Ltd. 6% . 225,000	....	2%	2% prem.
Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	3%	....	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	10%	....	10% dis. nom.
Straits Engineering Synd. Ltd. 6% . 45,000	....	....	par.
Tanjong Pagar Dock Board 5% . 1,050,000	par.	....	par.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, JULY, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Sellers.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000	-Y- 8,762.67	31-12-07	5%	for ½ year	100 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1,500	100	100	.	Dr. 14,115.95	31-12-07		for ½ year	55 Buyers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,729.20	31-10-07	20%	for 1 year	42 Sellers.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	80 Sales.
Oriental Hotel, Ltd., Ordinary	250,000	3,000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	3,259.65	1,774.45	30-9-07	7%	9 mos.	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

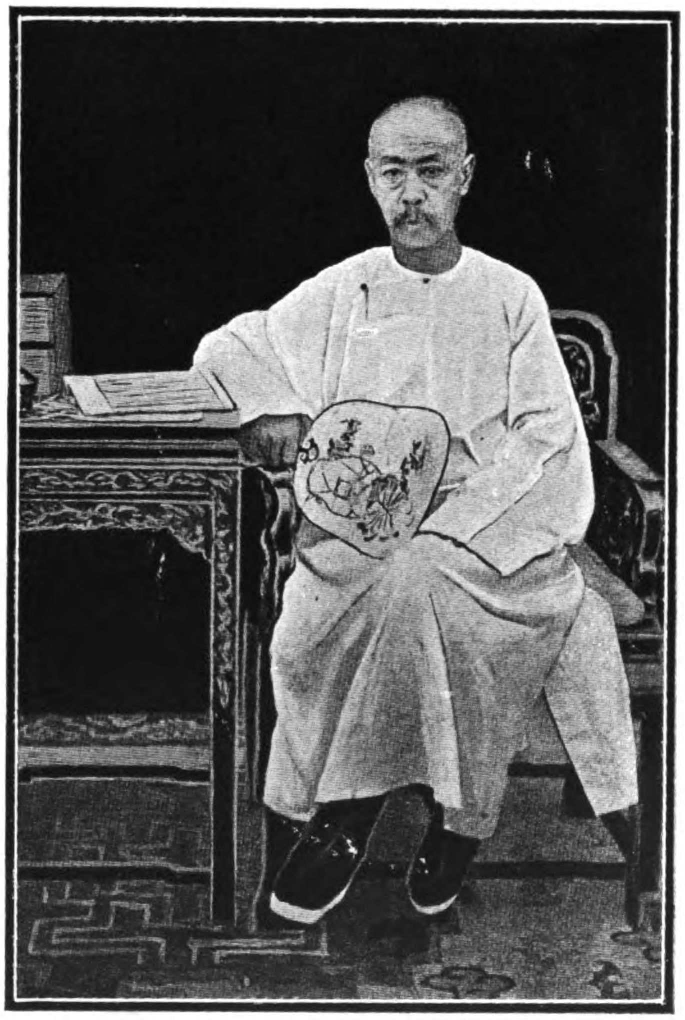
JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 99.70
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 96.10
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 95.10
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 80.80
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 80.80
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 81.60
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 82.80
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 93.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 94.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 87.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 92.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 95.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 500.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	7%	June and Dec.	,, 56.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 37.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 65.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 26.50
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 89.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	16%	July and Jan.	,, 84.50
Fuji Gassed-Yarn Company, Limited	50	50	18%	July and Jan.	,, 81.65
Tokyo Cotton Spinning Company, Limited	50	50	8%	July and Jan.	,, 31.50
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 50.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 7.70
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 66.55
Ensuiko Sugar Refinery Company, Limited	50	12½	20%	June and Dec.	,, 16.00
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 75.20
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 63.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 51.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 60.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 80.80
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 81.45
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	, 64.50
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 79 30
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 70.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 35.00
Otaru Timber Company, Limited	50	50		March and Sept.	,, 18.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 98.50
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 87.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 45.00
Tokyo Stock Exchange Company	50	50	10%	June and Dec.	,, 107.20
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	, 103.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 68.50

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 505	Tcs. 505	1901	£ 300,000	30,000	£ 10	£ 300,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co , Ltd	,, 200	,, —	,, 210	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending 2%	Dec. 31, 1906
Siam Tramway Co , Ltd	,, 160	,, 168	,, 168	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—		Mar. 31, 1907 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, 124	,, 127	,, 129	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	2½%	Dec. 31, 1907
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	June 30, 1907 Dec. 31, ,,
Howarth Erskine, Ltd.	,, —	,, —	,, 235	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	7½%	Oct. 31, 1907
Bangkok Dock Co., Ltd.	,, —	,, —	,, 305	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60 000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 100	,, 100	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, 1,350	,, 1,450	,, 1,450	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1908
Menam Motor Boat Co.	,, 130	,, —	,, 140	1905	,, 200,000	2,000	,, 100	,, 125,000	—	5%	July 31, 1907
Jenderata Rubber Co	,, 65	,, 70	,, 70	1906	£ 40,000	4,000	£ 10	£3, per Share	—	None	—
Langsuan Tin Mine Co.	,, —	3/	4/	1905	£ 170,000	170,000	£ 1	£ 60,000	—	—	—

Supplement of THE FAR EASTERN REVIEW,
September, Nineteen Hundred and Eight



His Highness Prince Ching—I-K'Uang

President of the Imperial Grand Council at Peking, and Comptroller-General of the Waiwu-pu
(Ministry of Foreign Affairs)

UNIV

THE FAR EASTERN REVIEW

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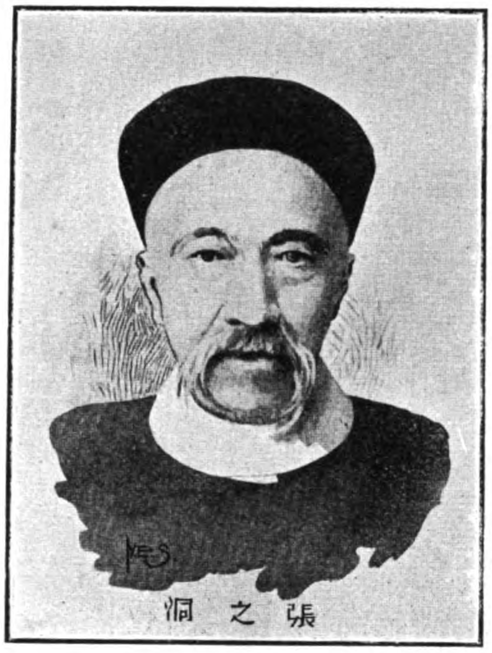
VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, SEPTEMBER, 1908 No. 4.

CHINA'S TWO GREAT VICEROYS



H. H. CHANG CHIH-TUNG
VICEROY OF THE LIANG HU
(Hupeh and Hunan)

H. H. YUAN SHIH-K'AI
VICEROY OF CHIHLI
Organizer of China's Modern Army

A REVIEW OF THE RAILWAY SITUATION IN CHINA

With the laying of the first 26-pound rail at Shanghai on the Shanghai-Woosung Railway by Mrs. Morrison, wife of the engineer in charge of the work for the Woosung Road Company, on January 20th, 1876, was inaugurated under the most unfavorable conditions one of the most important eras in the history of China, and the rapid and satisfactory progress made, in opening up the country by means of the railroad, is one that evokes general admiration among those who have familiarized themselves with the many obstacles and prejudices overcome by the pioneers among foreigners and progressive Chinese, and the many natural difficulties to be surmounted. Today there are approximately 9,000 miles in all of lines constructed and in operation, under construction, or projected. Of this estimate there are approximately 3,600 miles in operation and tapping the most important commercial centers of the empire.

The Four Trunk Lines.—The most satisfactory division of the railways of China, for the purposes of this article, is that recently proposed by the Board of Posts and Communications

(*Continued on next page*)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.
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WILLIAM CROZIER, Editor.

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MANILA, SHANGHAI AND YOKOHAMA, SEPT., 1908

in their recommendations for the reorganization and centralization of the control of the entire system. For the purpose of centralization, Hankow and Hsian-fu have been respectively proposed as the point from which the system should be controlled. With this in view the Board recommended the division of the system into four trunk lines as follows:

Southern-Trunk.—The Peking-Hankow and the continuation of that line including the section between Hankow and Canton when completed throughout. The Peking-Hankow section is 753 miles in length and the Canton-Hankow section of this proposed trunk line is 750 miles long, making in all from Peking to Canton a distance to be traversed of 1503 miles.

Branch Lines of Southern Trunk Line.—A line from Changsintien, a point on the Peking-Hankow, 13 miles South from Peking to Fengtai, making connection with the present Imperial Railways of North China and proposed Eastern Trunk line. Fengtai is about five miles east of Lukouchiao, the original terminus selected for the Peking-Hankow road. Changsitien is a point two miles south of Lukouchiao on the Peking-Hankow line.

Liengsienhsien-Yuli Branch, nine miles in length to tap coal mines and quarries at the latter point. Liangsienhsien is a point on the Peking-Hankow line 20 miles South of Peking terminus.

Liuliho-Chowkowtien Branch, 10 miles in length and tapping coal, lime and stone. Liuliho is 39 miles from Peking on the line to Hankow.

Kaoyhsien-Liuchang Branch, 11 miles in length, tapping coal supply. Kaoyhsien is 203 miles south of Peking on the main line.

The Chengfai Line or Shikiachwang-Taiyuanfu Branch in Shansi province covering a distance of 150 miles. Shihkiachwang is about 15 kilometers south of Chengtingfu and the line is used principally for carrying coal from the Tsingking mines and coke. The continuation of this line from Taiyuanfu 100 miles south west to Pingyaohsien is projected with a view to continuing it to Hsianfu in Shensi province. Other branches proposed are: from Tatungfu, North Shansi to Kalgan, and from Puchowfu in southwest Shansi to Tungkwan in Shansi and from that point ultimately westward to Hsianfu. Another proposed line is from Pingyangfu to Tsehchow where it will connect with the Peking Syndicate road when the line is extended to that point.

Taokow-Tsinghwachen Railway is a Peking syndicate enterprise that connects with the Peking-Hankow at Singsiang about 320 miles south of Peking. It runs from Taokow on the river Wei from which point communication eastward is made with Tientsin by way of the Grand Canal. The length of the road is 93 miles and runs westward from Taokow crossing the Peking-Hankow line at Singsiang and proceeding west to Tsingwachen, a distance of 48 miles from Singsiang. The line will be extended from this point westward to Tsechowfu to connect with future Shansi lines. A branch about a mile and one-half in length makes connection with the Jamieson Mines worked by the Syndicate.

Kaifeng-Honanfu Railway, the entire length of which when completed will be 115 miles, runs from Kaifeng westward crossing the Peking-Hankow at Chenchow, 40 miles distant, and proceeds westward to Honanfu. This line will be extended to Hsianfu and may be completed and in operation this year. The country tapped is rich in minerals and agricultural products.

The Shantung Railways connect the German settlement at Tsingtau with Tsinanfu, a distance of 256 miles. The concession to the Germans provided for an extension from Tsinanfu to connect with the Peking-Hankow Railway at Chentingfu. With the withdrawal of the German garrison the concession for this section was resold to China. A branch of the Shantung railway of 1.4 meter gauge 27 miles in length connects Poshan and the Tsechuan mines with this railway at Changtien. A railway connecting Chefoo with Tsinanfu via Weihsien is being agitated, but so far without success.

Tientsin-Pukou or the Tsinpu Railway connecting Tientsin with Pukou, a point opposite Nanking on the Yangtze River, is now under construction. The northern division between Tientsin and Yihsien will be built by German capitalists and from Yihsien to Pukao by British capital. The two sections are 674 miles in length. It will connect with the Shanghai-Nanking Railway on the South and the present Imperial Railways of North China at Tientsin on the North while a projected line running west from Pukao is proposed to connect with the Peking-Hankow at Hsingyang, about 200 miles north of Hankow.

The Shanghai-Nanking or Houning Railway covers a distance of 193 miles and connects the terminus at Woosung Forts via Shanghai, Soochow, Wusieh, Changchow, Tanyang, and Chinkiang, with Nanking opposite the terminus of the Tsinpu line. This line may find connection with the Peking-Hankow as indicated in the previous paragraph. The entire line of the Shanghai-Nanking Railway was completed last March.

The Shanghai-Hangchow-Ningpo or the Hai-Hang-ning Railway, the agreement for the construction of which was recently signed between the British-Chinese Corporation, is the result of negotiations over what was known as the Soochow-Hangchow-Ningpo Railway concession. Demands had been made for its cancellation but finally the matter was satisfactorily adjusted. This line as projected will be 200 miles in length.

Kashing-Ningpo line or the Chekiang Railway: This will connect Kashing with Hangchow, and an extension is proposed from Hangchow to Shaoshingfu and Ningpo. Over 40 miles of the Kashing-Hangchow section is under construction and a short branch from Hangchow to Tsientangkiang has been in operation for some time. The line runs east of the Grand Canal towards Haning.

Kiangan or Hufong Railway.—Chinese opposition to British enterprise, runs from Tungkado terminus at Shanghai to Sunkiangfu and Kashing where it will connect with the Chekiang and Anhwei system. This line is under construction.

The Anhwei or Wu-Kwang Railway.—This line runs from Wuhu to Kashing by way of Siuenchanghsien and Kwangtechow to Kashing via Huchowfu. This is a Chinese enterprise also and construction is under way.

The Canton-Hankow or Yuch-Han division of this proposed trunk system when completed will be 750 miles in length. The construction has been greatly delayed for lack of organization on the part of the provinces of Kwantung, Hunan and Hupeh through which the line passes. The prospects for greater expedition are now much brighter. The branch lines are as follows:

Canton-Samshui line, 32 miles, completed by the American-China Development Co.

Chuchow-Pinghsiang line, 66 miles, constructed by Chinese, in 1906, connecting with the coal mines of Pinghsiang.

The Szechuan Railway or Chengtu-Hankow line, projected, some preliminary work done, 600 miles.

Canton-Kowloon line, which, when completed, will place Hongkong in a favorable position for the trade of South China, is 122 miles in length with the construction well under way on the British section which will be completed next year. There may be some delay on the Chinese section. This line is considered the most important under way.

Canton-Macao Railway, projected and concession granted to China-Portuguese Railway Co. in 1904. No work done and franchise agreement reported cancelled recently.

Canton-Amoy Railway, length of section under construction between Canton and Whampoa and from the latter point it has been surveyed to Amoy via Haifung, Lufung, Hwai-lai-hsien, Puning, a point near Kityang, Chao-chow-fu junction with the Swatow branch and then over the hills by way of Hwangkang and Cahoan to Amoy.

The Kiangsi or Nanhsiang Railway; *Kiukiang to Nanchang*, a distance of 100 miles, and a continuation to Shaochow is proposed.

The Fukien Railway or Amoy-Foochow, a proposed line connecting these two points by way of Changchow.

Foochow to Kwantow, a proposed branch along the Min River connecting these two points.

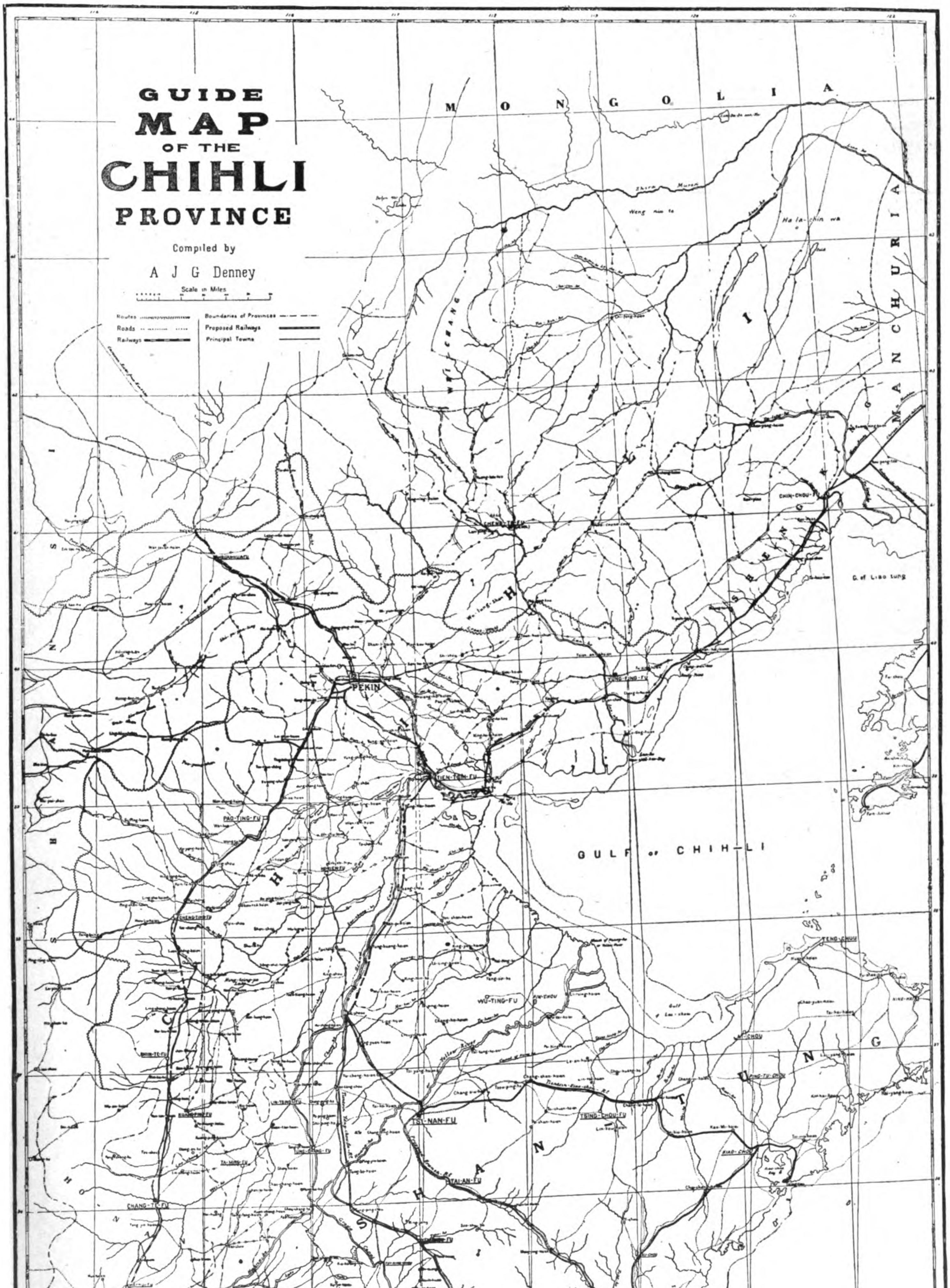
Changchow-Chaochow, a proposed road to connect the Fukien railways with the Canton-Amoy line.

Swatow-Chaochow branch, 24.5 miles, connecting these two points. This is a Chinese enterprise costing $1,500,000 and three trains run daily from each terminal.

Yunnan-Tongking Railway. This line is surveyed and under construction between Laokay and Yunnanfu, a distance of 291 miles, and will be completed under favorable circumstances by 1910. The section between Hokow and Tahati, a distance of 44 miles, was completed this year. The construction is through most difficult country, there being about 150 tunnels approximately 10 miles in all and a large number of bridges of long spans. It is proposed to continue the line from Yunnanfu to Chentu and from there to Chunking to connect with the Szechuan Railway.

Langson-Lungchow-Nanning-Pakhoi Railway. The first extension from Langson to Lungchow

(*Continued on page 104.*)



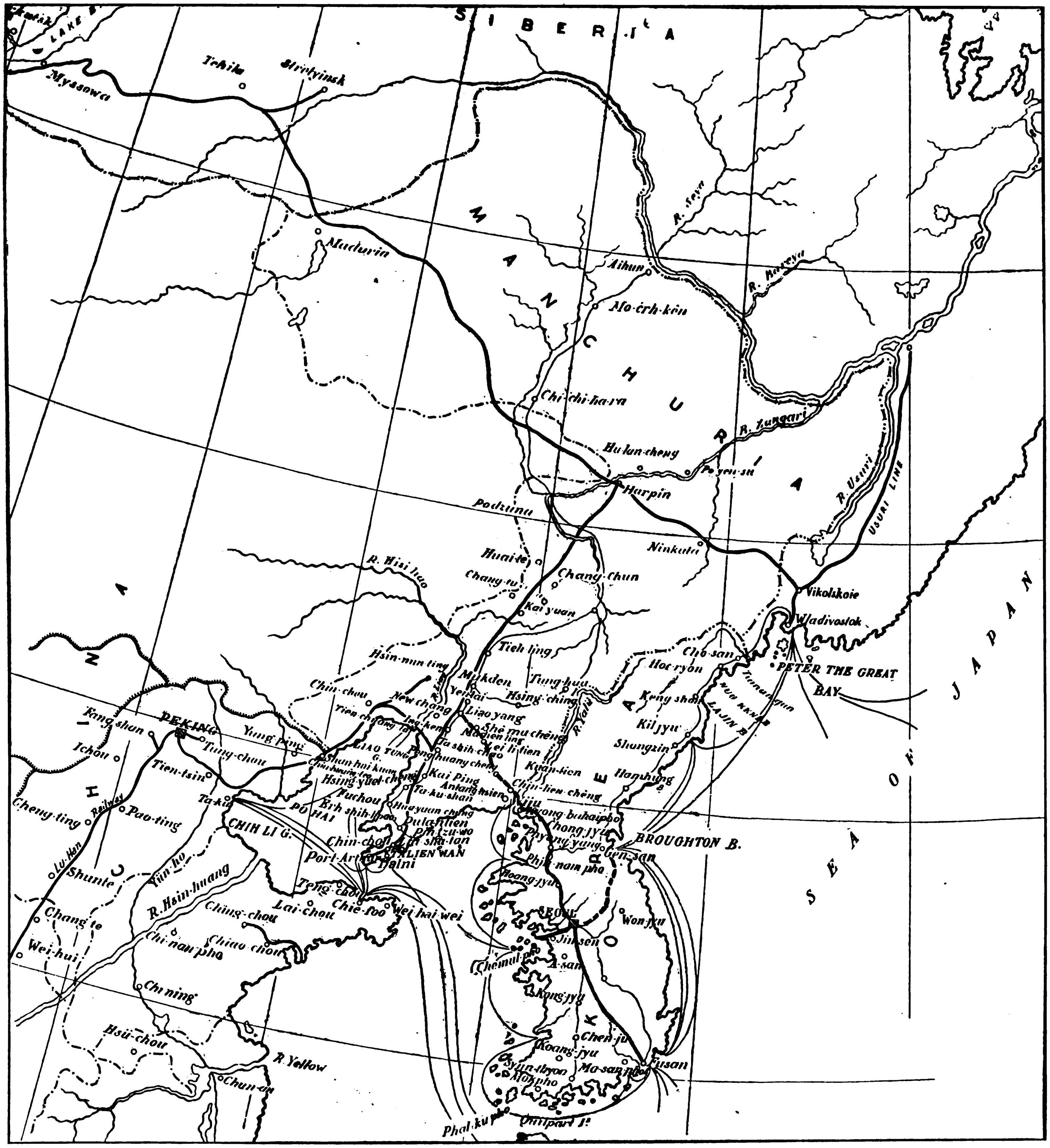
REPRODUCED FROM THE FAR EASTERN REVIEW OF OCTOBER, 1904

was conceded to the Fives-Lilles Company in 1895. This projected line is 220 miles in length, and the extension to Nanning from Lungchow and from Nanning to Pakhoi is proposed. There is also a proposed extension from Nanning to Wuchang and a number of short branches radiating from Wuchow would connect Canton, Kweilin, Kwangchow, etc.

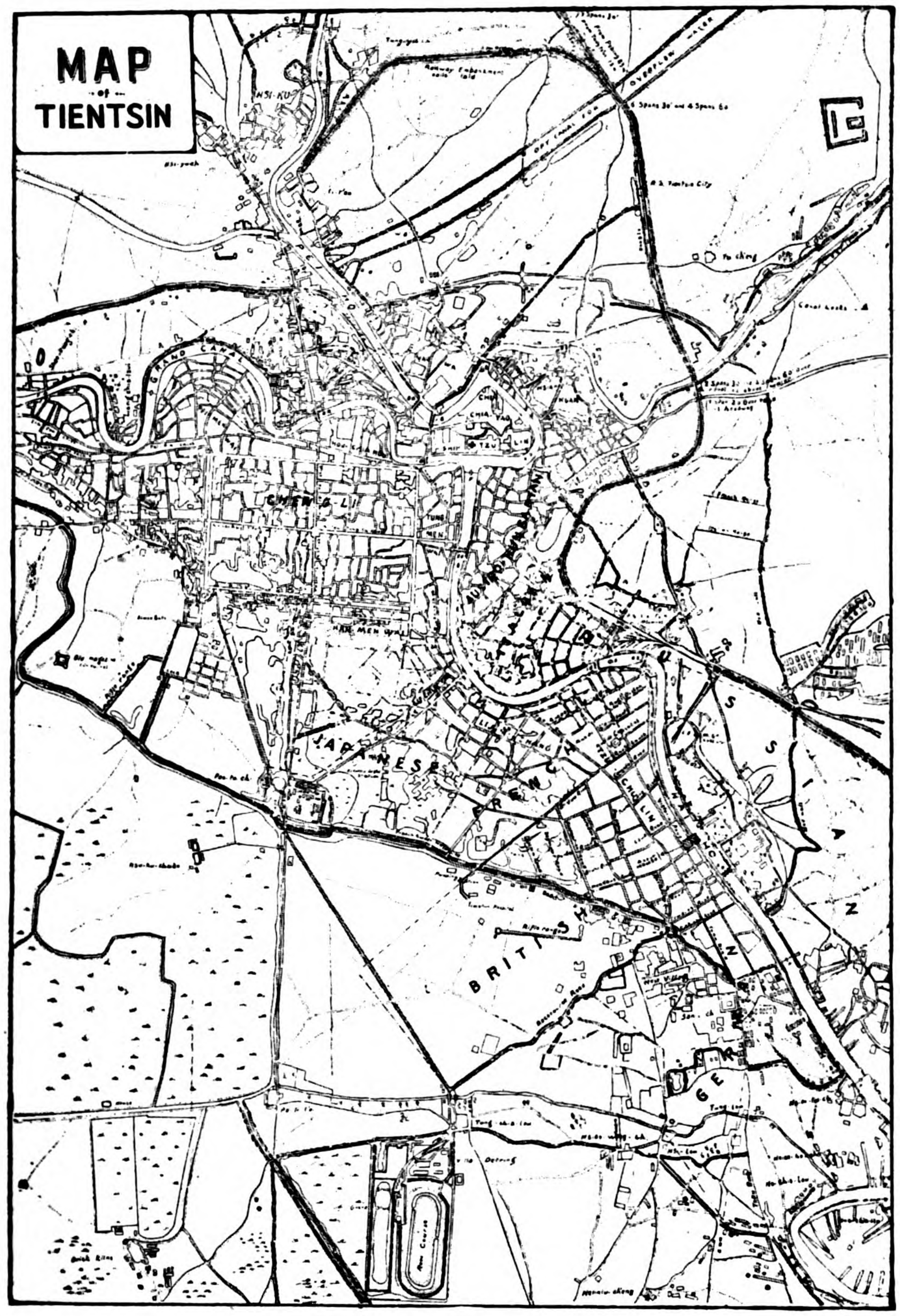
Sunning or Ningyueung Railway.—This is a fifty mile line in operation connecting Kungyifou via Sunning with Samkahoi 5 miles east of the coast port of Kwonghai in Kwangtung province. A Chinese enterprise.

Bhamo-Tengyueh Line (*Yunnan*). This proposed line is narrow gauge about 150 miles in length connecting Bhamo, in Burma, with Tengyueh in Yunnan. It is also proposed to continue this line to Talifu, and from there to Yunnanfu and thence northward to connect with the Szechuan Railway at Chengtufu or Chungking.

Northern Trunk Line.—This division of the entire system for the purpose of this article makes the Peking-Kalgan Ry the first section of the trunk line, and its projected extension to Kulun (Urga) and Kiachta. The total length of the section to Kalgan is about 130 miles and is expected to be completed by the end of 1909. The first section from Chatao two miles east of Fengtai where it connects with the Imperial Railways of North China to Nankow, a distance of 33 miles, was opened to traffic in September 1906. The construction



NORTH CHINA, MANCHURIA AND KOREA RAILWAY MAP. REPRINTED FROM THE FAR EASTERN REVIEW

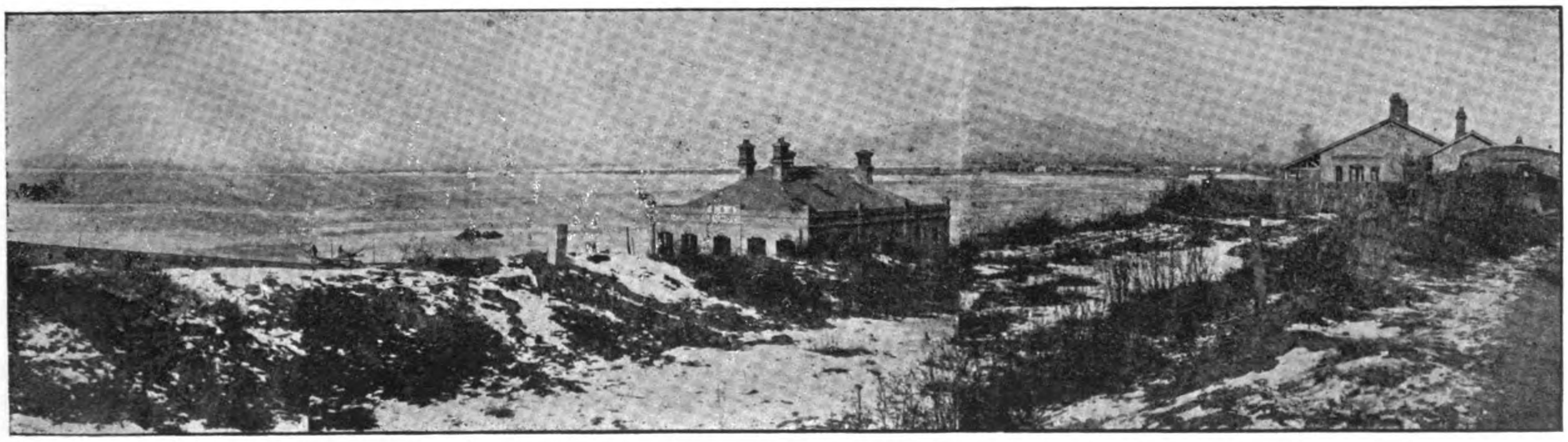


MAP OF TIENTSIN: SHOWING RAILWAY ENTRANCE

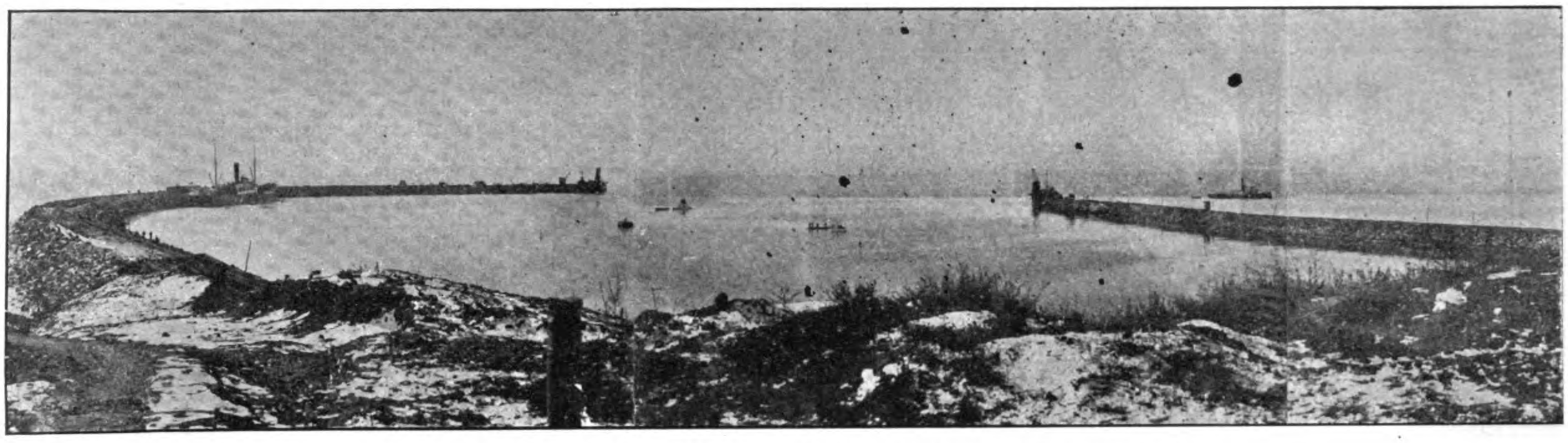
work on the balance of the road is most difficult and much tunneling is necessary. The 14-mile section from Nankow to Chatao require four large tunnels which are well under way while the line from Chatao to Kalgan has been surveyed and construction commenced.

The branches of this proposed Northern Trunk line have been but vaguely suggested, one connecting Kalgan and Jehol to the East about 200 miles, and another to the West a distance of 150 miles to Suiyuan (Kukukoti), also one connecting Tatungfu in North Shansi with Kalgan. And when the proposed extension to Kulun (Urga), a distance approximately of over 700 miles, is effected it will be divided into two sections, viz., Outer and Inner Mongolia, and all the future lines in Mongolia and Jehol will be included in this division.

The Eastern Trunk.—This division includes the Imperial Railways of North China or the Peking-Mukden line commencing at Peking and proceeding by way of Tientsin, Tongku, Shanhaikwan, Chinchowfu, Kowpangtze, Kiuliuho, Hsinmingfin and Mukden in all 521 miles n length. This line has a standard gauge of 4 ft. 8.5 in. The principal branches include the line from Peking to Tungchow, a distance of 15 miles; a branch from Kowpangtze to Yingkow (Newchwang), a distance of 59 miles; from Chingwantao to Tangho 6 miles; from Kaopetien on the Peking-Hankow line to Siling, the Western Tombs. This line is 25 miles in length and is used exclusively by the Imperial family. As previously stated the connection between the Peking-Mukden and the Peking-Hankow is made by a branch to a Changsitien from Fengtai. The South Manchurian Railway which runs north from Dalny to Changchun, a distance of 460 miles, connects at Mukden with the Eastern Trunk. The Chinese Eastern Railway, the main line of which runs for about 950 miles in Chinese territory from the border of Manchuria to Vladivostock, and the branch running South to Kwanchengtze, a distance of about 130 miles, connecting with the South Manchurian line at Changchun, thus making connection with the Eastern Trunk at Mukden. The Russians who control the Chinese Eastern and the Japanese who control the South Manchurian Railway still maintain two distinct termini and each company has a line of its own making connections between Kwanchengtze and Changchung, a distance of 5 miles. The Russian line has a gauge of five feet and the original narrow gauge of the South Manchuria has been widened to standard gauge. The feeders for the South Manchurian line include a branch from Nankwanling to Port Arthur, a distance of 29.5 miles; from Liushutun to Tafangshen, 3.5 miles; Tashihkiao to Yingkow (Newchwang) but does not connect with the Eastern Trunk, the terminus being on the opposite bank of the river from the Chinese station; Yentai-Taiking, 9.75 miles; Suchiatun-Fushun, 37.25 miles, and several short spurs to the mines; Narrow gauge line, 2 ft. 6 in., from Mukden to Antung, 186 miles, leased by Japan 1905 for 18 years and connects with the Korean terminus across the Yalu. The distance by



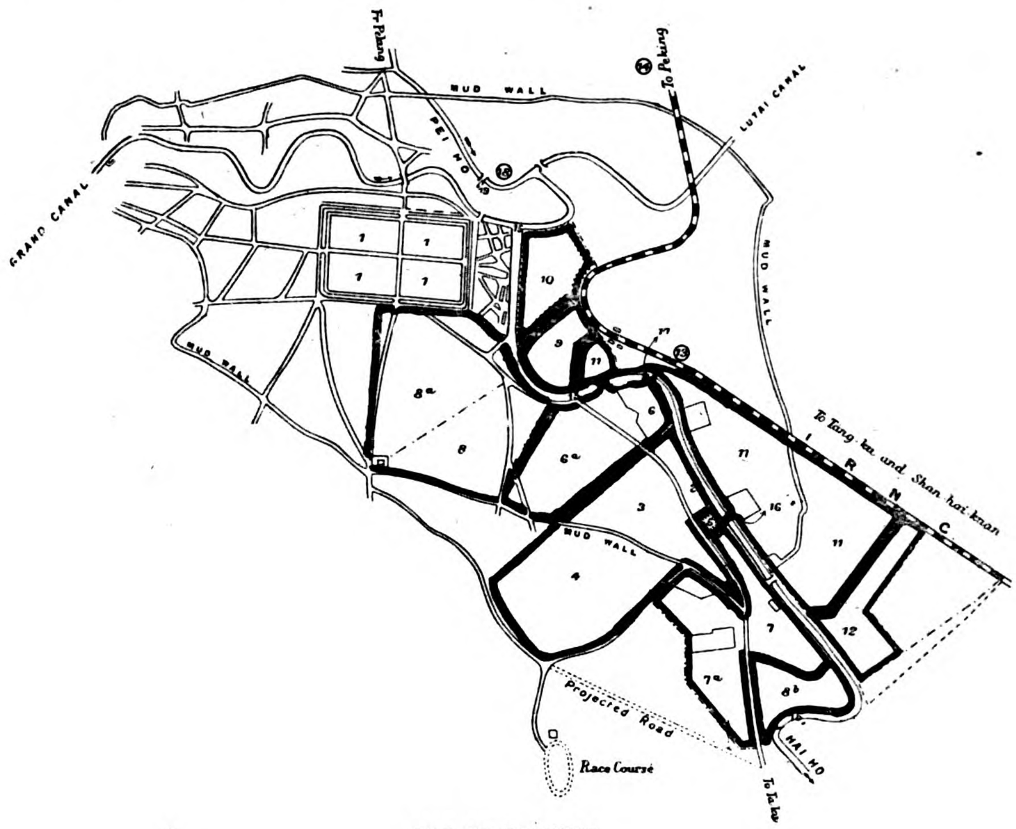
PORT OF CHINGWANGTAO OF THE CHINESE ENGINEERING AND MINING COMPANY



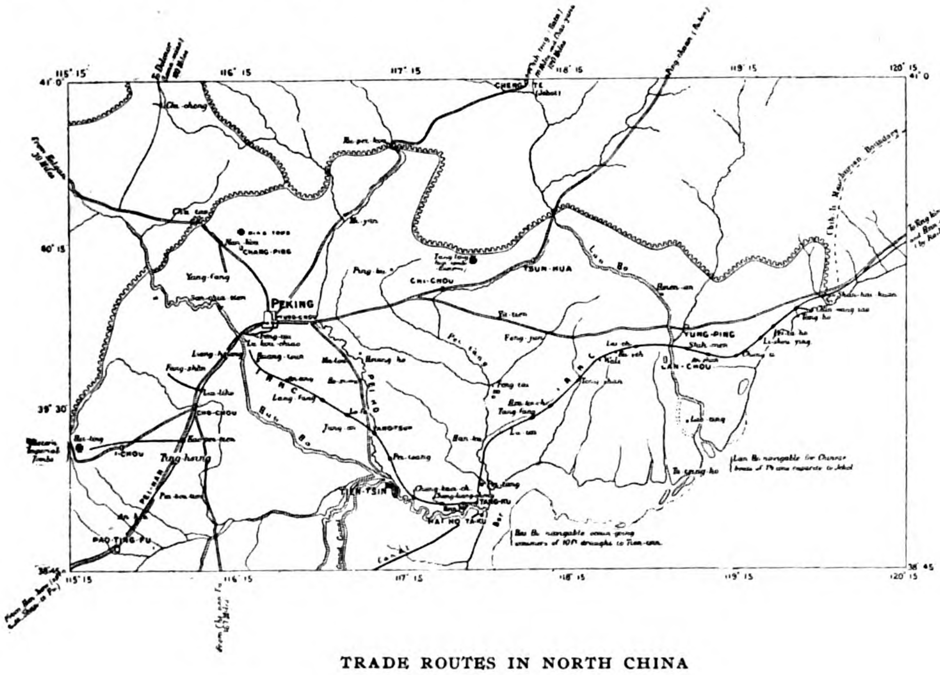
PORT OF CHINGWANGTAO, OF THE CHINESE ENGINEERING AND MINING COMPANY

rail on the South Manchurian Railway lines from Dalny to Kwangchetze is 465 miles and from Yingkow to Kwangchengtze, 330 miles. There are several projected lines in Manchuria among which are the Fakumen Railway and a line connecting Kirin with Changchun. This latter has the approval of the Chinese authorities and latest reports have it that Tls. 3,000,000 have been subscribed to carry out the work of construction. It may be built jointly by Japanese and Chinese capital and the survey is under way. The proposed Fakumen Railway which would connect Hsinmintun and Fakumen is objected to by the Japanese on the ground that it would compete seriously with the South Manchurian line. The matter is still unsettled.

Western Trunk Line.—This proposed trunk line in its relation to the other divisions into which China's Railways may be divided comprises the line connecting Chentingfu and Taiyunfu and joined with the proposed Tungpu railway; extended westward together with the proposed line between Tunkwan and Lanchow in Kansu province, and from there westward a proposed line to Ili in Turkestan. While this is as yet on paper and will take years to realize, it is the proposed Western Trunk line. The branches which will ultimately feed this proposed trunk road will commence at Taiyunfu, where a line from Tatung would tap the proposed Kalgan-Suiyan line; at Pingyang, a line to Tsechow to tap the Peking Syndicate line; at Tungkuan, a line to Loyang to connect with the Loyang-Honan Railway; from Lanchow tapping the lines converging at Hsianfu, including a line connecting Chengtu via Hanchung with Hsianfu and forming a connecting link with the Szechuan Railway and the British



MAP OF TIENTSIN

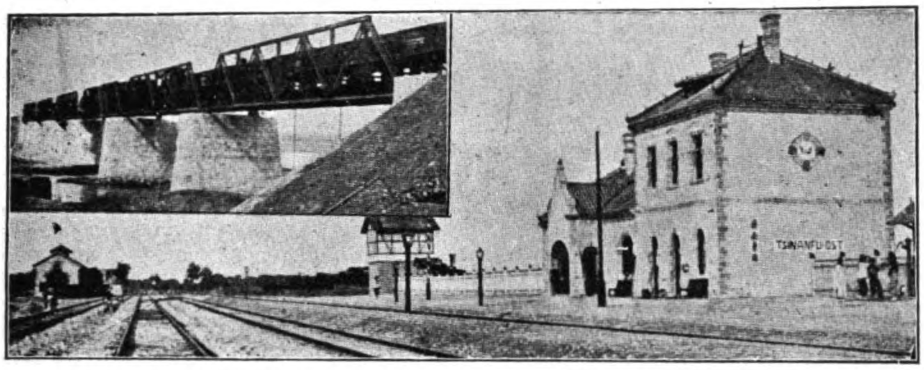


TRADE ROUTES IN NORTH CHINA

and French extensions to the south. On the West at Lanchow, lines to Tsingkai (Kokonor) Tibet and Ili in Chinese Turkestan are proposed as branch lines.

It may easily be concluded from the foregoing résumé of the different systems of railways in operation, lines being constructed or projected and the many suggested railways, designed to open up the country, that, for the present, no other branch of enterprise is engaging the attention of the Chinese Government or the Chinese people to a greater degree, and that the development of the resources of the empire will surely be measured by the progress made.

Throughout the entire history of railways in China there has been a marked conservatism on the part of the Chinese government. At first, a strong prejudice prevailed against the introduction of western ideas and western transportation methods did not escape. This prejudice has been gradually overcome and in its stead, there is a well defined national policy that has for its purpose the control by China of all its railways and, ultimately, their nationalization. The advantages of the railroad are now recognized and from almost every section of the country petitions for concessions are forwarded continually by Chinese companies to Peking. One marked feature of the policy of the Peking government is its purpose to

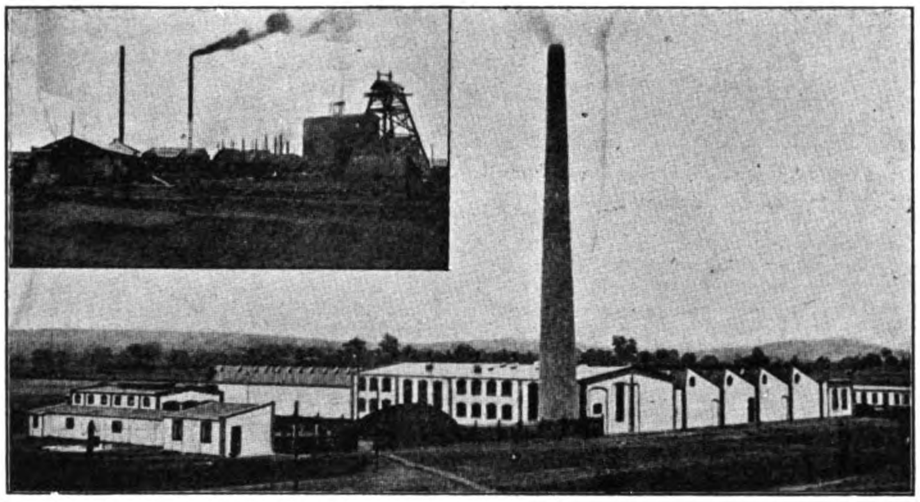


BRIDGE ON THE SHANTUNG RAILROAD, BUILT UNDER GERMAN CONCESSION, ABOUT 35 MILES FROM TSINGTAU; A TYPICAL WAY-STATION ON THE LINE

repurchase foreign concessions or to so provide in all agreements that the control should remain with the Chinese government or revert to it ultimately. There is also a movement favoring the construction and operation of the lines by Chinese engineers. In this connection it might be said that during the last two decades many young Chinese have taken engineering courses in American and European colleges and, in several instances, railroad construction has been carried on under the direction of these graduates with marked success. However, the best general results may be traced to the foreign engineers who have made a life study of railroad building and of conditions in China, co-operating with Chinese engineers and receiving the moral support of the Chinese government and the Chinese people.

When the first Woosung-Shanghai line was closed upon its repurchase by China in 1877, the prospect for railroad construction in China was not encouraging. The closing chapter of this enterprise points to the tearing up of the track with the shipment of the rolling stock, etc., etc., to Formosa and the erection, on the site of the Shanghai terminus, of a temple to the Queen of Heaven. The policy at this time was to keep foreigners at arm's length at all costs.

It was not until 1878 that any successful attempt was made to introduce the railroad. It came finally with the assistance of Director General Tong King Sing of the China Merchants Steam Navigation Company and Li Hung Chang, Viceroy of Chihli. The former was interested in securing a coal supply and the latter, while previously opposed to the Shanghai-Woosung line, became interested with Tong King Sing in establishing collieries in the Kaiping district in Chihli and, between them and their friends, the Chinese Engineering and Mining Company was formed. The first shaft was sunk at Tongshan in 1878. From this point to Pehtang the nearest port available was about 30 miles. The question of transportation became vital to the success of the company and even to Viceroy Li Hung Chang the railroad now appealed strongly. After some delay a railway was sanctioned by the Peking authorities and Mr. C. W. Kinder was appointed resident engineer in charge of construction. Suddenly for some reason the approval of this line was withdrawn.



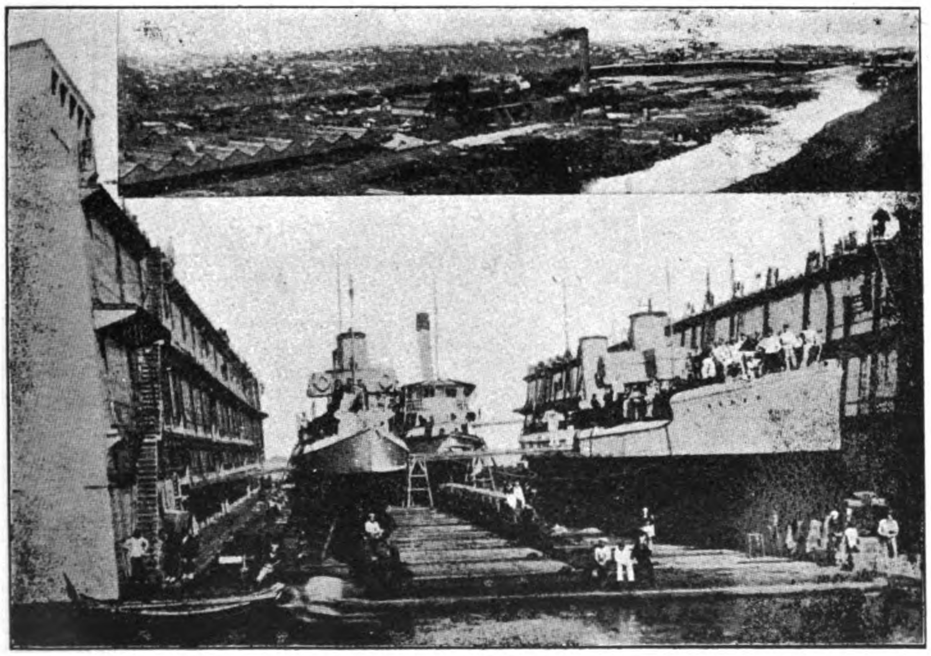
COAL MINE AT WEIHIEN: A GERMAN SILK FACTORY NEAR TSINGTAU

The company, failing to secure reconsideration, proceeded to construct a canal from the colliery to Lutai, the nearest point on the Pehtang River. There were seven miles between the end of the possible canal and the colliery, and to cover this distance the Imperial authorities were induced to permit the construction of a tramway of standard gauge with the proviso, that mules only would be used for motive power. The standard gauge for this mule tramway was secured only after a hard fight by the resident engineer and in 1880 the line was completed, and the first permanent step taken in introducing the railway in China.

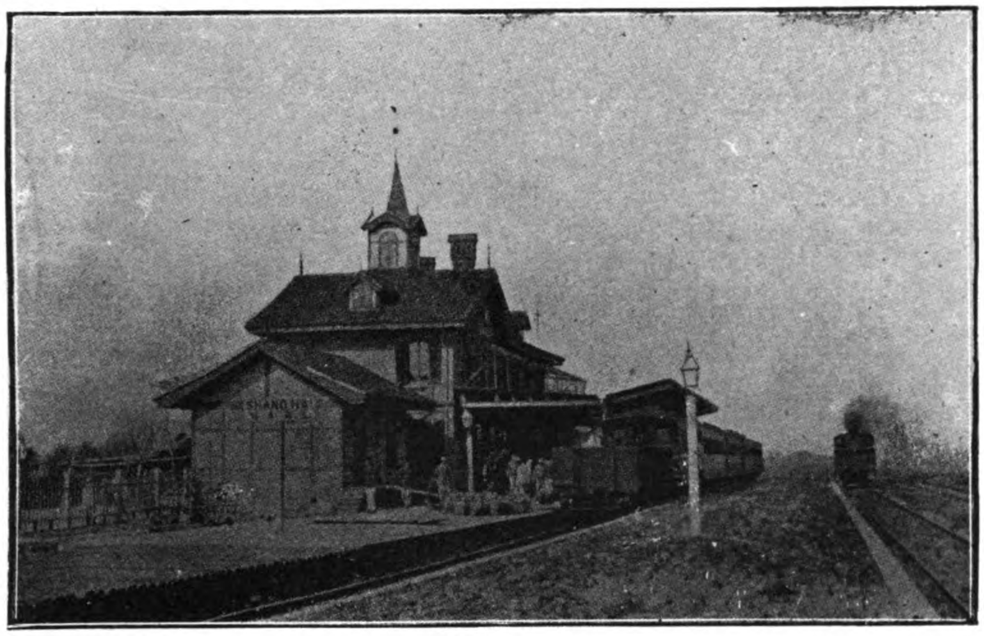
Mr. Kinder did not propose to depend upon mules for his tramway for lack of persistence. He had succeeded in his fight for a standard gauge and he was encouraged to fight for a locomotive. Without consulting Peking, he proceeded to build a locomotive out of a portable winding engine and old iron picked up at the mines. It was not a fancy production but it served the purpose. Its cost was approximately 500 Mexican pesos and it was christened "The Rocket of China" on June 9th, 1881, by Mrs. Burnett, wife of the Engineer-in-chief of the company. As soon as Peking heard of this monster being substituted for the mules, an order was received prohibiting its use. It took some weeks to induce the authorities to withdraw their objection, but this was finally accomplished and "The Rocket" went into commission on construction work. This was the thin edge of the wedge that made for the general introduction, slowly but surely, of railways into China, and it is of interest to note that the successs of this initial venture was entirely due to the recognition by Viceroy Li Hung Chang and Tong King Sing of the advantages of the railway for transportation purposes in opening up the rich coal deposits of Kaiping and especially so in view of the fact that each of these enterprising Chinese were personally interested in the success of the mining venture.

This initial railroad venture from the Mines to Hsukochuang was a success and two additional locomotives were secured in 1882. But Mr. Kinder saw his opportunity to extend the line. He succeeded Mr. Burnett as Engineer-in-chief in 1882 and at once began to urge the extension of the tramway to Lutai and succeeded with the assistance of Viceroy Li Hung Chang, now impressed with the value of the railroad. The Kaiping Railway Company was formed with a capital of $250,000 to take over the tramway and carry out the construction of the extension. A Chinese member of the British bar named Wu Ting Fang was given the management of the company and work was begun at the Hsukochuang end in 1886 and six months later it was completed and rolling stock, including an American locomotive and forty ten ton coal cars, purchased.

Then Viceroy Li Hung Chang became the champion of railway extension in earnest and



VICEROY'S ARSENAL AT HANYANG: FLOATING DOCK IN THE HARBOR OF TSINGTAU



CHINESE IMPERIAL RAILWAYS: SHANGHAI-NANKING LINE—THE STATION AT SHANGHAI

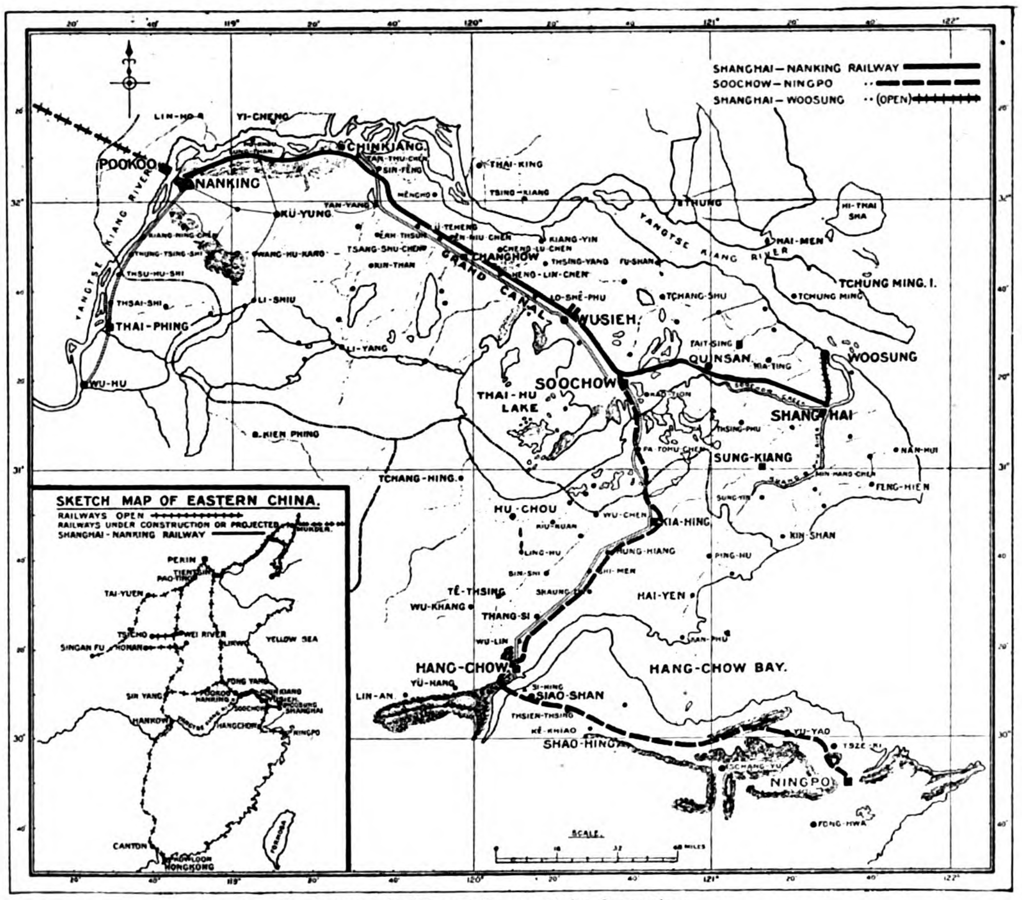
by the time this line was completed to Lutai, the viceroy had a memorial before the Imperial authorities urging the extension of the line to Tonghu and on to Tientsin on the grounds that such a road was a military necessity and would tend to the better protection of the empire from invasion. This fortunately struck the right chord and the scheme was approved and directed executed. The name of the company was changed to the China Railway Company and a prospectus issued asking for subscriptions of Tls. 1,000,000, the Hongkong and Shanghai Banking Corporation being made bankers. This prospectus was endorsed by the Viceroy, but notwithstanding this influence it was with great difficulties that the promotors financiered the scheme. The section to Tongku was completed in April 1888; in August, Tientsin was reached; in October the viceroy inspected the entire line, and in November two trains passed daily between Tongshan. The item of cost of construction of this line was exceeding low. It averaged about £5,000 a mile.

Permission was then asked to extend the railway from Tientsin to Tungchow, a point about 12 miles east of Peking as well as to extend the line eastward to Shanhaikwan. This roused the reactionary party at the capital who opposed the Tungchow extension on the ground that it would expose the capital to foreign attack. This fight against the extension was carried to extremes and resulted not only in blocking the decree but by inciting the junk owners to the extent that the bridge over the Peiho at Tientsin, then being constructed to connect the foreign settlements with South Tientsin, was directed destroyed by the viceroy to quiet the people. But the extension to the east were completed to Kuyeh in 1890. In 1891 the extension to Shanhaikwan was authorized and the Chinese Imperial Administration was formed with Mr. Kinder, Engineer-in-chief, to carry on the work which was completed in 1894.

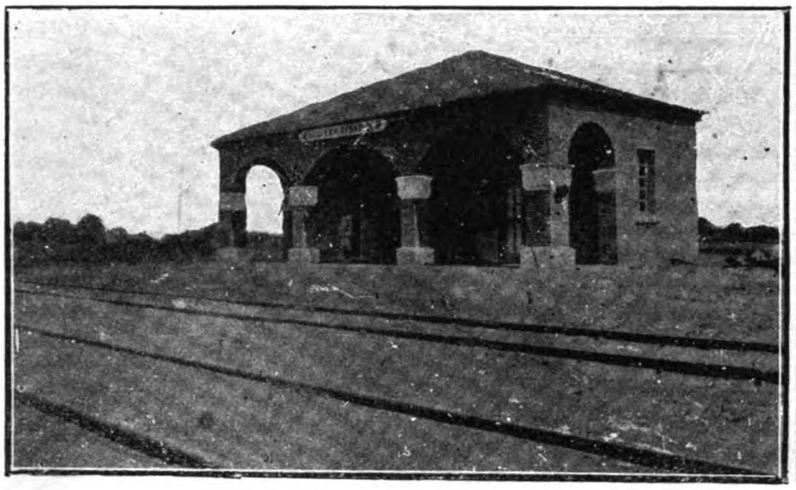
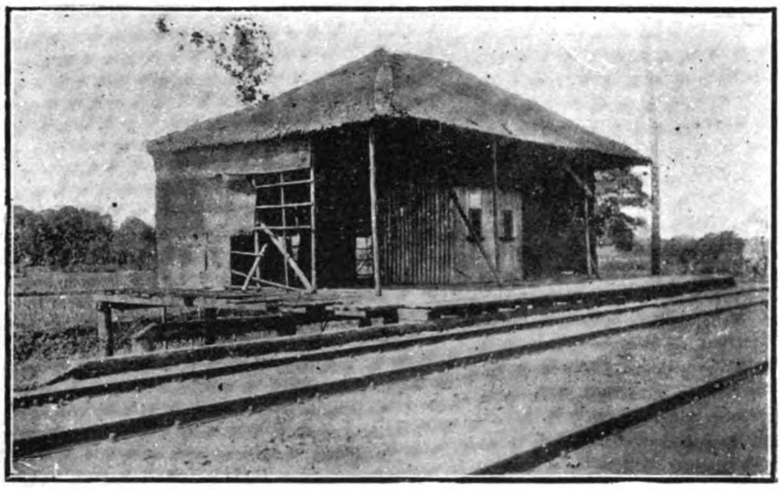
In the meantime permission had been granted to continue the railway to beyond the great wall, and in 1894, at the outbreak of the war with Japan, the line had been constructed to 40 miles beyond Shanhaikwan. The following year the war was concluded by the treaty of Shimonoseki at which His Excellency Li Hung Chang represented China. Upon his return he took up the matter of the Tungchow extension, the sanction for which had been withdrawn in 1888, with the result that it was renewed with a change of terminus to Lukouchiao and construction began in 1895. The line however was not built to Lukouchiao, but to Fengtai and from there later to Machiapu. This change was made without authorization, but was accepted by the Chinese apparently without protest.

In the meantime the line of the China Railway Company from Tientsin to Kuyeh was taken over by the Imperial Railway Administration and the shareholders of the company were reimbursed for their script by government bonds bearing five per cent. Up to this time the liabilities of the Imperial Railway Administration was Tls. 2,540,000 divided as follows:

Hongkong-Shanghai Banking Corporation advances, Tls. 1,240,000; due the Russo-Chinese Bank, Tls. 600,000, and due the Deutsche-



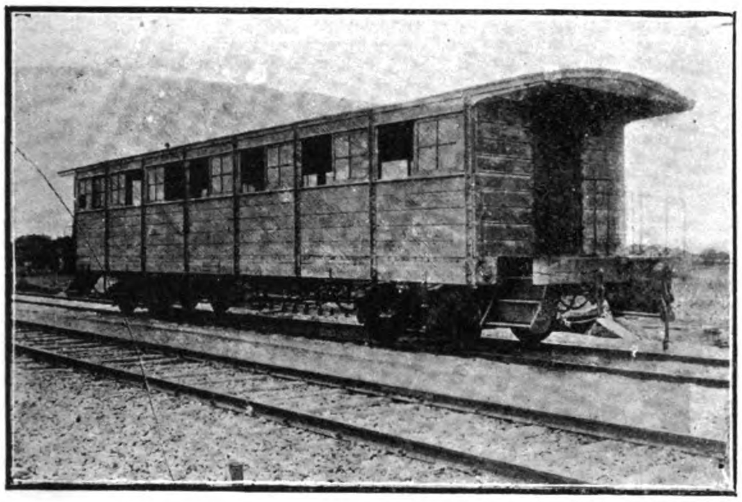
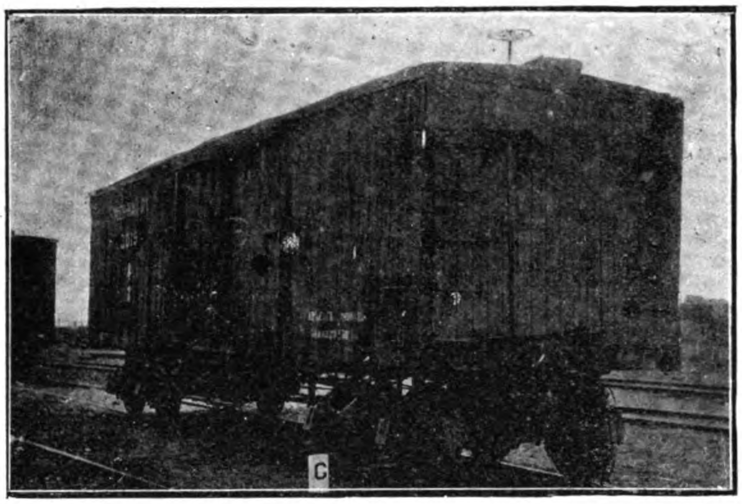
The Shanghai-Nanking Railroad and Its Connections.

IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

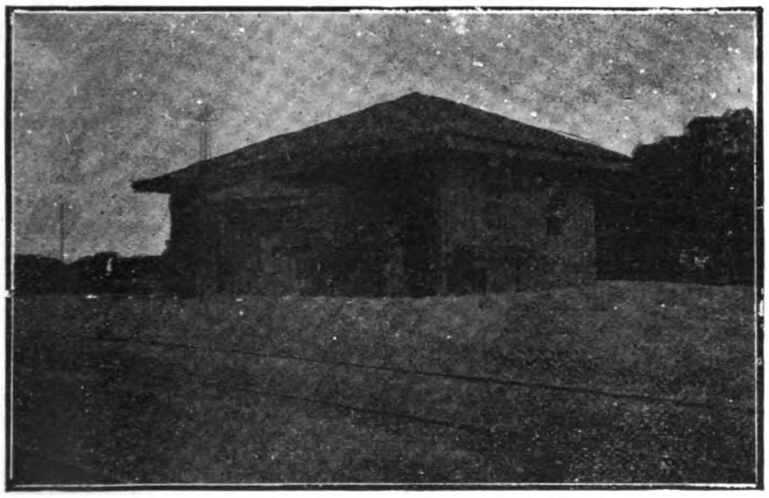
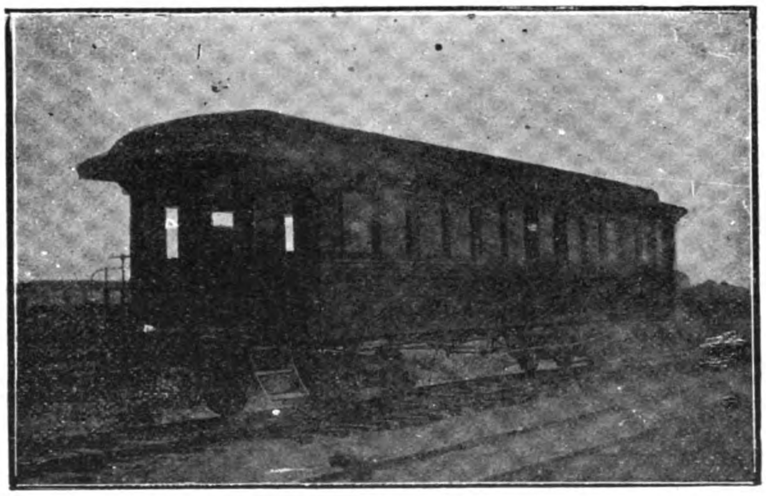
STANDARD THIRD CLASS STATION BUILT BY CHINESE — STATION BUILT BY THE AM.-CHINA DEVELOPMENT CO.

Asiatische Bank, Tls. 700,000. To take up these liabilities and carry on the extension to Hsinminting, it became necessary to float a loan, and for this purpose Hu Yen Min, the governor of Peking and Director General of the Chinese Imperial Railway Administration, with the British and Chinese Corporation, a Syndicate formed by the Hongkong and Shanghai Corporation and the firm of Messrs. Jardine, Matheson & Co., and a loan for Tls. 16,000,000 to be used as implied in the contract: "For the construction of a railway line from Chunghousa to Hsinminting, and a branch line to Yingkow, and for the redemption of previous loans to the Tientsin-Shanhaikwan and Tientsin-Lukouchiao lines." Then followed a Russian protest on the ground that it interfered with Russian rights in Manchuria. The Russo-Chinese Bank entered into competition to handle the loan on more favorable conditions. Finally the matter was adjusted and an understanding arrived at by which Russia was practically recognized as having the right to extend her railway interests to South-Western Manchuria and by which Russia agreed not to seek railway concessions in the Yangtze valley. The reference to the construction of the line to Hsinmingting provided that it should be built by China and that European engineers be allowed to inspect the work. The loan agreement was, however, signed June 15th, 1898, and construction commenced in the autumn of the same year. After overcoming many difficulties the line was extended to a point 30 miles beyond Yingkow by February 1900. From Kaopangtzu the line was then extended

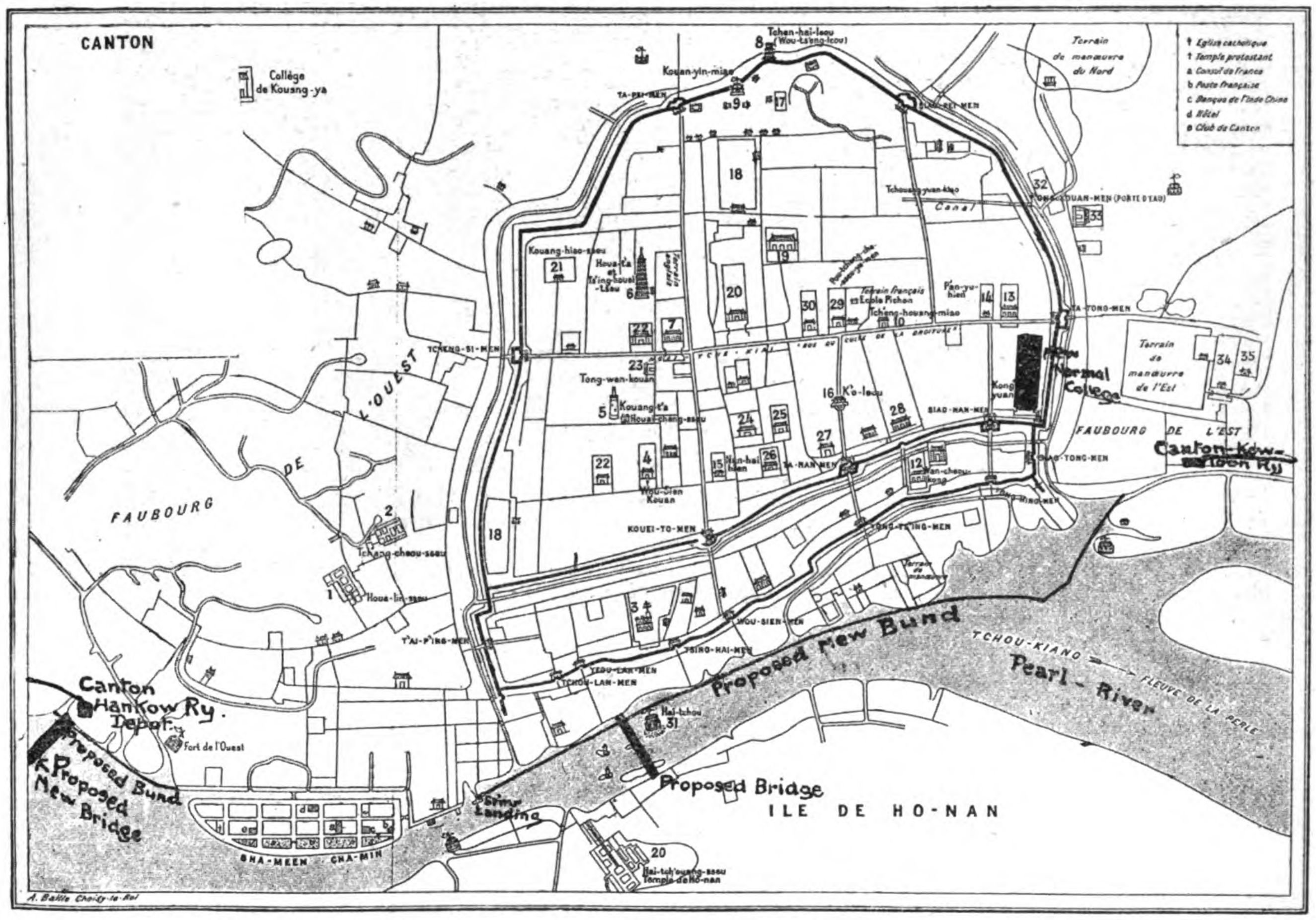
IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

OLD SECOND CLASS CAR NOW USED AS THIRD CLASS — A BOX CAR

IMPERIAL CHINESE RAILWAYS: CANTON-HANKOW LINE

FIVE EYE BRIDGE STATION — A FIRST CLASS COACH



MAP OF CANTON

further for 20 miles when the Boxer troubles intervened.

In the meantime, Hu Yen Mei was succeeded by Chang Yen Mao. The latter was not in sympathy with Engineer-in-Chief Kinder and not a few attempts were made to have Mr. Kinder removed, but without success, and it must have been gratifying to this successful and enterprising engineer and railway pioneer that his services were recognized by his sovereign at this time and as a mark of Her Majesty's esteem created a Companion of the Order of St. Michael and St. George.

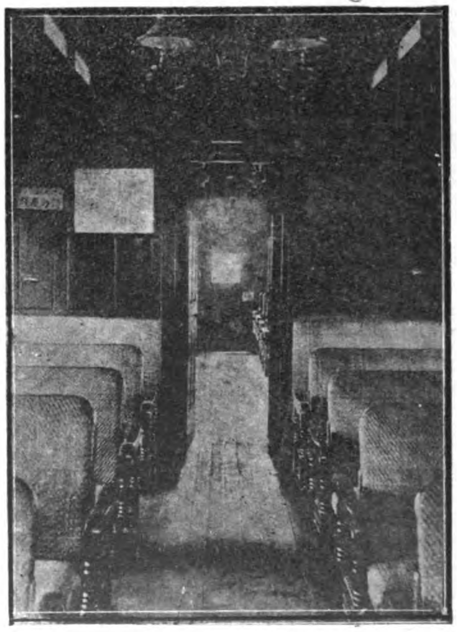
The boxer troubles interfered greatly with the program under way and the invasion of the allies for a time threatened international complications over the line. The council of the allied admirals gave over the control of the Tientsin-Tonghu section to the Russians. The latter later assumed control of the Tientsin Yangtsun section but found the British established at Fengtai. The strained relations between the British and Russians was somewhat accentuated by the proposal of Count von Waldersee to give the Russians the supervision of the Yangtsun-Shanhaikwan section and the German military to take charge of the Peking-Yangtsun. The British landed at Shanhaikwan in September, and in October a Russian force arrived and claimed the line from Newchwang to Tonghu by right of conquest. Count Waldersee's order was revoked soon afterwards and by January, 1901, an agreement was arrived at by the different powers whereby the Russians retired and the Peking-Shanhaikwan section was turned over to the British the latter part of February. In March there were more conflicts of interests in Tientsin, but a clash was avoided and while the differences were engaging the British and Russian governments the British Railway Administration was busy repairing the line. In August, 1902, the provisional military government in Tientsin retired and Viceroy Yuan Shih Kai took charge and it was not until October, 1902, that the British Administration assumed charge of the Shanhaikwan-Newchwang section to be turned over later to the Chinese Imperial Railway Administration. During the period that the British Administration was in control a twelve mile branch was built to Tungchow at a cost of £30,000.

With the renewal of active construction after the Boxer troubles the line was completed to Hsinminting in the latter part of 1903. An estimate of the cost and equipment of this line, a distance of 588 miles in all, is placed at about $40,000 gold a mile. The net revenue for this line has given a return of 4.75% on capital invested, for 1903; 7% for 1904; 20.75% for 1905 and 18.25 for 1906.

The connection between Hsinminting and Mukden is a narrow gauge built by the Japanese during the Russian-Japanese war and taken over in 1907 by purchase by the Imperial Railway Administration.

The building of the six mile branch from Tangho on the Peking-Sanhaikwan line to Chinwangtao, a few miles to the South of Shanghaikwan, was another addition to the facilities of the line as a result of the Boxer troubles. Chinwangtao is an ice free port and much of the supplies for the allies was landed there. In 1901 when the Chinese Engineering and Mining Co., Limited, was organized under British law and took over the holdings of the old company, by arrangement with the Admiral in command, this company took the railway over. Since that time it has been

CANTON-HANKOW LINE.—QUARTERS OF THE SUPERINTENDENT, MR. J. LIND.



CANTON-HANKOW LINE.—INTERIOR OF FIRST CLASS COACH

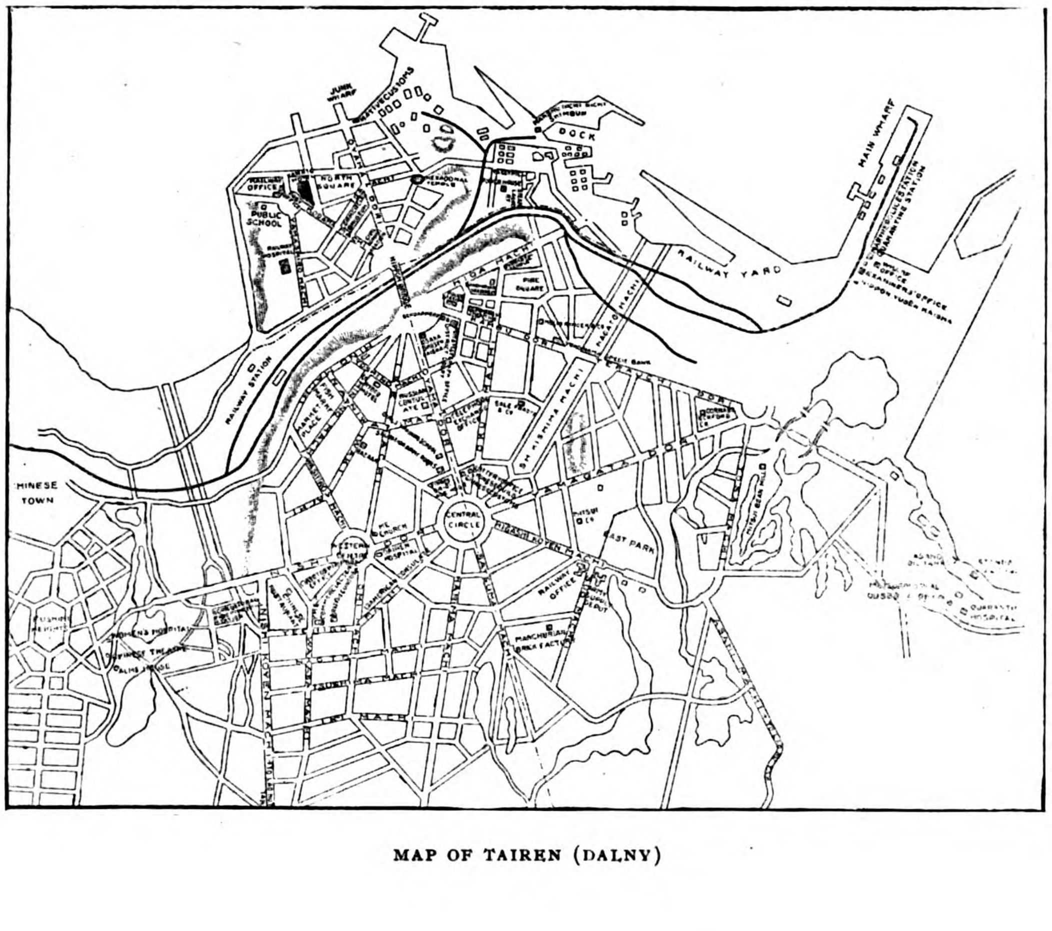
(*Mee Cheung, Photographer.*) KOWLOON-CANTON RAILWAY, BRITISH SECTION

THE ENGINEERING STAFF

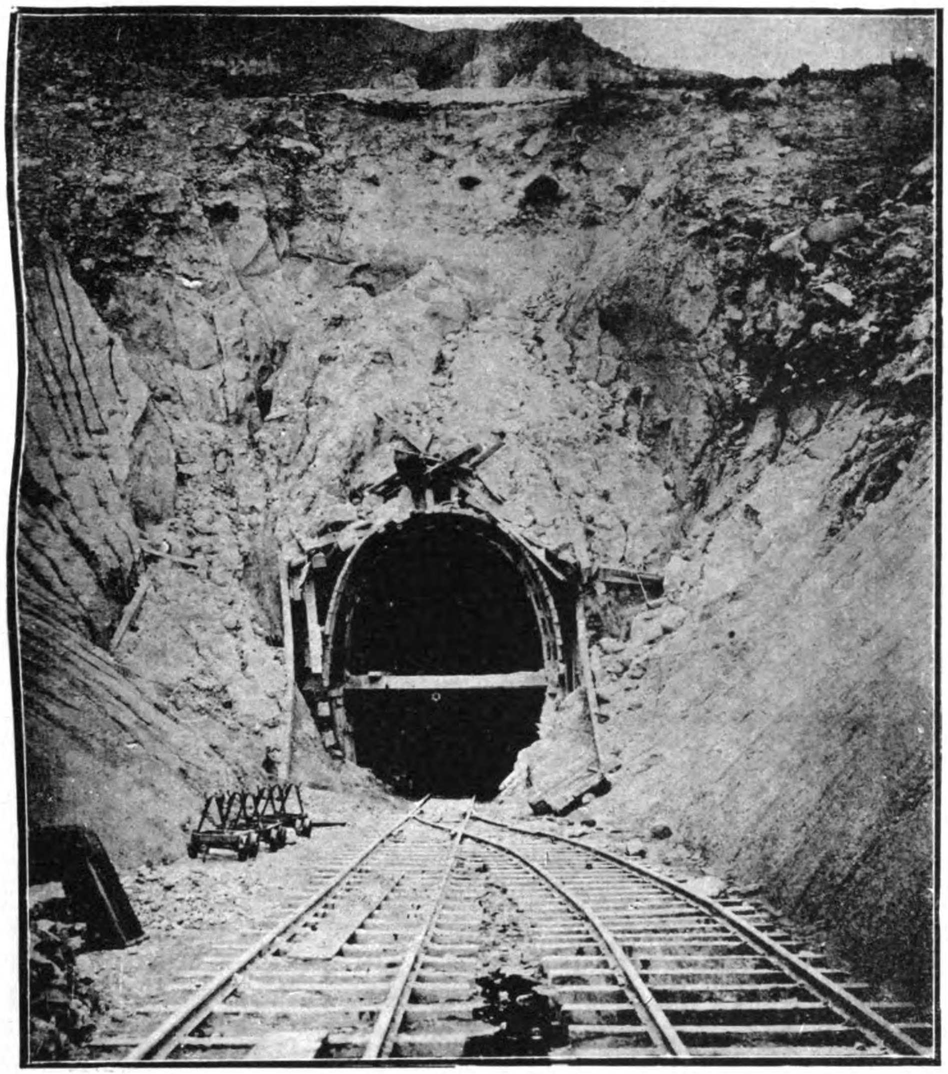
greatly improved and the port facilities enlarged at a cost of £220,000.

The Chinese Eastern Railway.—The agreement between the Chinese Government and the Russo-Chinese Bank for the construction and management of the Chinese Eastern Railway Company was signed September 8th, 1896. The company was to be organized with a capital of 5,000,000 roubles, to be subscribed to by Russian and Chinese subjects exclusively. It also provided for the survey of the line through Manchuria towards Vladivostock covering a distance of about 950 miles in Chinese territory and its construction. The gauge provided for was five feet. The line was to be the property of the company for 80 years upon the expiration of which time it reverted without cost to China. It also provided for the repurchase of the line in 36 years after it was put in operation at a price representing the cost of the line and interest. It further provided that upon the opening of the line for traffic the company would pay the Chinese Government the sum of Tls. 5,000,000.

In the spring of 1897, work of construction was started and the same year the city of Harbin was founded and made the headquarters



MAP OF TAIREN (DALNY)



(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION

ENTRANCE TO BEACON HILL TUNNEL

To carry out the substantial program outlined, the South Manchurian Railway was organized with a capital of Yen 200,000,000 to take over the interests of the Japanese government and improve the property. A loan was floated to equip the line with rolling stock and widen the military narrow gauge to a standard gauge, and to double track between Dalny (Tairen) and Suchatun, a distance of 235 miles. All this work has been practically accomplished and a splendid service has been inaugurated.

Peking-Hankow Railway.—The history of the Peking-Hankow line may be said to begin with the declared policy of Chang Chih Tung that China should first devote her energies to the construction of trunk lines as the initial step in the development of her railways, when the memorial was presented asking for permission to extend the North China Railway to Tungchow in 1889, at which time he advocated a trunk line connecting Hankow and Lukouchao. The only hope of carrying out the scheme was to secure the assistance of foreign enterprise. Several companies were organized and submitted proposals and finally these simmered down to the consideration of a proposal from a group of American financiers, one from British capitalists, and another from the Belgian Syndicate. At this time Taotai Sheng Kung Po was director-general, having been placed in charge by Imperial edict, in 1896, of the projected line.

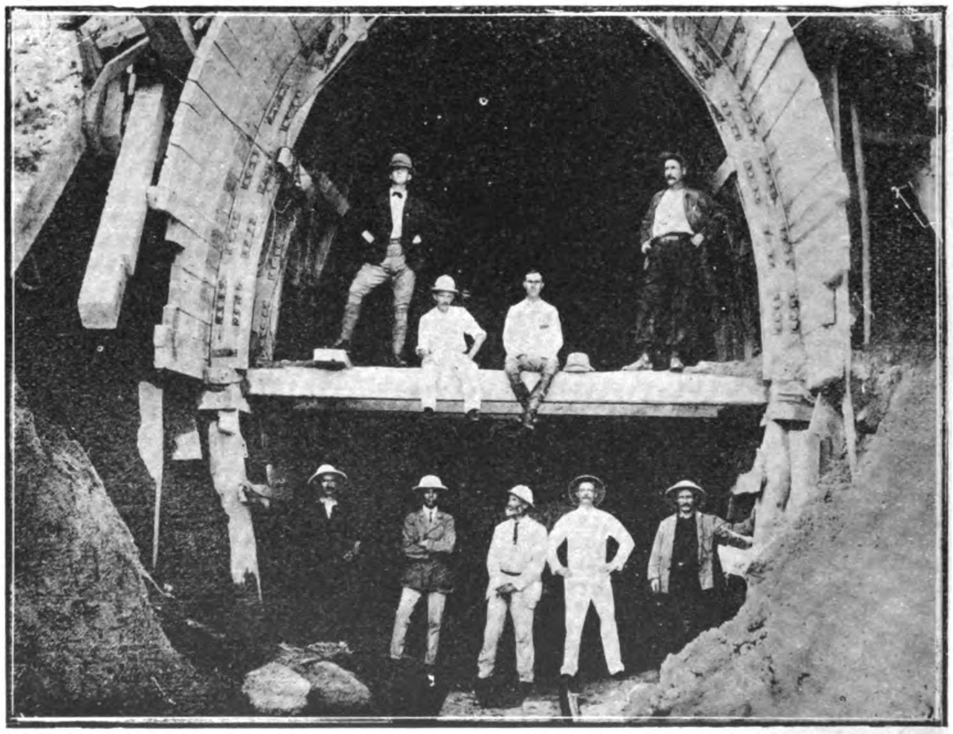
It appears that the American and British proposals were too precise in regard to certain stipulations or appeared so to Chang Chi Tung and Sheng Kung Pao, and especially so in view of the fact that the Belgian Syndicate were willing to meet every wish of the Chinese Government without question. The result was that the agreement between the Belgian Syndicate and the Chinese Government was signed in June 1897 by Sheng Kung Pao. The Syndicate soon found, however, that in order to financier the project in Europe, it would be necessary to secure improved terms from the Chinese government.

Finally, the arrangement was revised and ratified at Peking. The agreement in this form provided for the issue of a loan of francs 112,500,000 bearing interest at 5% and to be amortized within twenty years after 1909. The Chinese Government were given the right to repay the loan in or after 1907, thereby cancelling the agreement. The Imperial revenue and profits of the railway were made

of construction. The following year, Russia secured a lease from the Chinese Government of the Liaotung peninsula extending over a period of 25 years and with it, a concession to the Manchurian Railway Company to construct a southern line from Harbin to Port Arthur of five foot gauge. The construction of the line was pushed rapidly and by the date of the Boxer outbreak, with the exception of a number of bridges it was practically completed. During this trouble much of the line was destroyed and especially between Harbin and Port Arthur. The work was, however, renewed with vigor and in the fall of 1901 the entire Chinese Eastern Railway connecting the Trans-Siberia with Vladivostock across Manchuria and the line south from Harbin to Port Arthur was completed. This system in Manchuria in all measured about 1,600 miles.

The war between Russia and Japan broke out in 1904 and the Japanese early seized the line to a point above Mukden. By the Portsmouth Treaty in 1905 the control of the line from Port Arthur to Kwangchengtze passed to the Japanese. The gauge was reduced by Japan during the war to a narrow gauge to suit the Japanese equipment and a light railway was constructed between Mukden and Antung for military purposes.

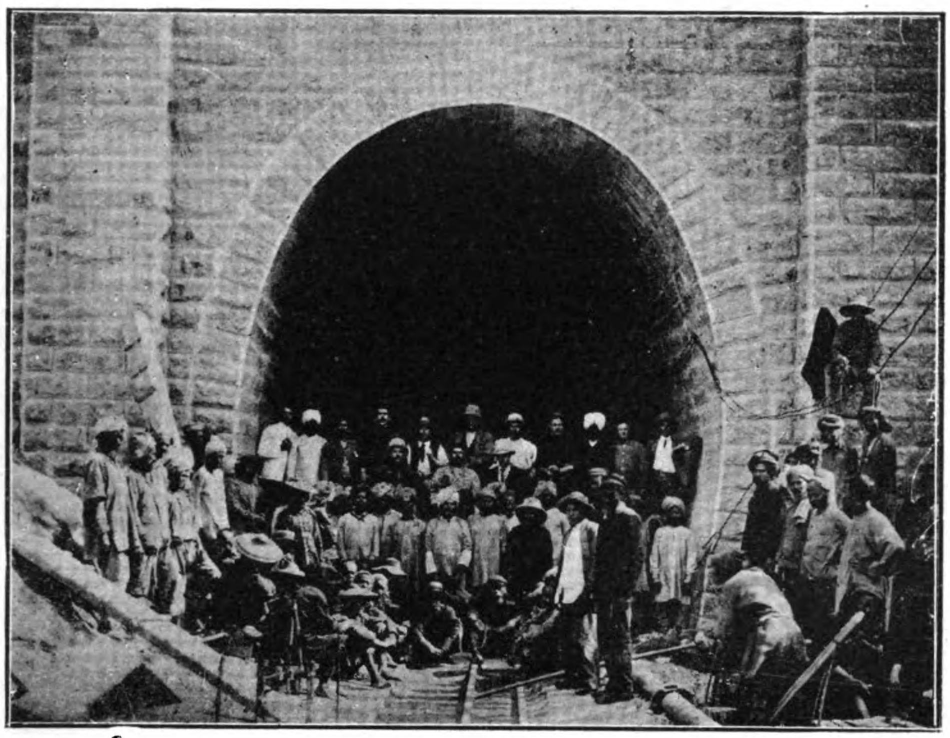
With the transfer of the railway to Japan preliminary agreements were entered into for the construction of a branch from Kwangchentze to Kirin by Japanese and Chinese capital; for the transfer of the Mukden-Antung line and providing for its construction as a standard gauge. The Mukden-Antung concession extends over a period of 18 years when it reverts to China upon payment of a price decided by arbitration.



(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION

ENGINEERING STAFF AT TUNNEL HEAD



(Mee Cheung, Photographer.)

KOWLOON-CANTON RAILWAY, BRITISH SECTION.—FINISHED ENTRANCE TO BEACON HILL TUNNEL

security for the loan and the financial arrangements were placed in charge of the Russo-Chinese Bank. In this connection, there is every reason to believe that French and Russian influence combined to the furtherance of the Belgian Syndicate's interests during these negotiations with the ultimate purpose of securing a link in the Peking-Hankow for a railway through the empire. A proposal was made by the China Association that the British Government should guarantee a loan covering the construction of the line in order to checkmate Russia and France. These efforts were of no avail. The Belgian Syndicate secured a working agreement covering a period of 40 years with full control of the line. When the loan was floated the fact that over three-fifths was subscribed in Paris confirmed the belief in the injection of Russian and French influence. And it was about this time that Russia renewed her efforts to secure a concession for a railway from Peking to some point on the Siberian line, but without success.

Previous to 1899 and before the Belgians took over the work of construction, the Imperial Railways of North China had surveyed the line south from Lukouchiao to Paotingfu under the direction of Mr. Kinder and Mr. T. J. Bourne in 1896 and the work practically completed. On the Hankow end, Chinese engineers had

(Mee Cheung, Photographer.)

KOWLOON-CANTON RAILWAY, BRITISH SECTION.—WORKING PLANT AT TUNNEL

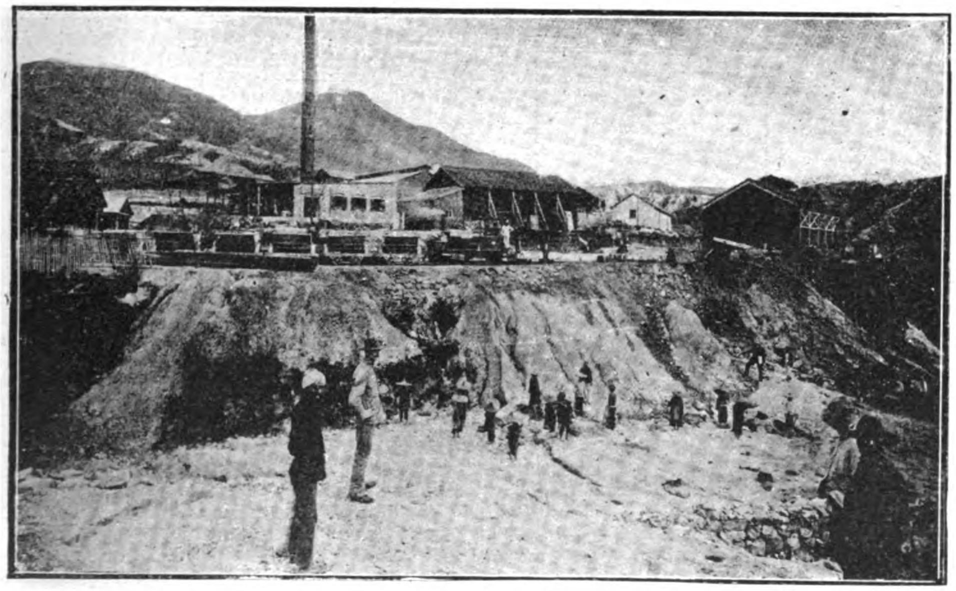
constructed a few miles. In connection with this construction, it is of interest to direct attention to the fact that much of the steel was supplied by the Hangyang Government Iron and Steel Works.

Construction began under the Syndicate in 1900 and was soon interrupted by the Boxer troubles. When peace was restored, the line was extended to the Chienmen gate at Peking and the name changed from the Lu-Han line to the Pe-han line. The construction was then pushed so rapidly that by the fall of 1905, the line was opened for traffic with the exception of the bridge over the Yellow River, the construction of which presented many serious engineering problems. The length of this bridge is 3.03 kilometers.

This line is a standard gauge, the steel used is 85 pounds furnished by the Hangyang Iron and Steel Works and the approximate cost per mile construction was $35,000 gold. The length of the line is about 756 miles. Recently a movement was inaugurated to arrange a loan for the purpose of redeeming the line from the Belgian Syndicate.

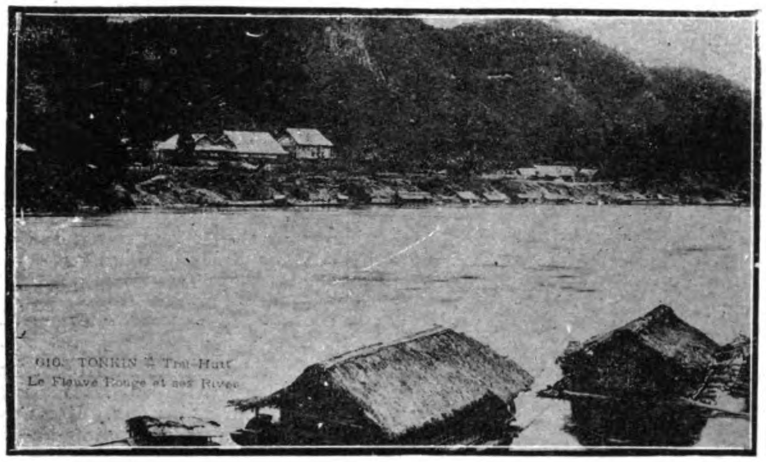
Hankow-Canton or Yueh-han Railway.—The concession for the construction of this line which is to connect Canton and Hankow was granted to an American syndicate in 1898, and, under the contract entered into, the syndicate, which was formed by Mr. Calvin Brice under the name of the American-China Development Company, undertook to furnish funds to the amount of $20,000,000 to be secured by the issue of Imperial gold bonds at 90 and drawing interest at 5% subject to redemption at the option of the Chinese Railway Company, the title of the company formed for the purpose of concluding the agreement to which Mr. Wu Ting Fang signed as director-general on behalf of Sheng Kung Pao. The Development Company was to receive 5% of the cost of construction for supervision and share in 20% of the net profits. Three years were given for the completion of the work. Great opposition was met with from the Chinese authorities of Hunan when the survey was attempted and it was suggested that a route through Kiangsi be chosen. The chief engineer, Mr. Parsons, refused to accept this suggestion and under imperial protection the Honan section was surveyed. The line between Wuchow and Canton by the Parsons survey is 742 miles in length and includes the Samshui extension. Another line was run to the Pinghsiang mines from Chuchow and which has since been constructed and operated by the Chinese.

It was found, however, that the estimate of the cost upon which the original loan was based would not cover half the cost and it became necessary to have the agreement amended so as to increase the loan to $40,000,000. This was fought by the French and Belgian interests but without success and the Development Company not only secured an increase in the amount of the loan but an extension of time to five years. This was ratified by the Chinese government in 1900. A clause was also inserted prohibiting

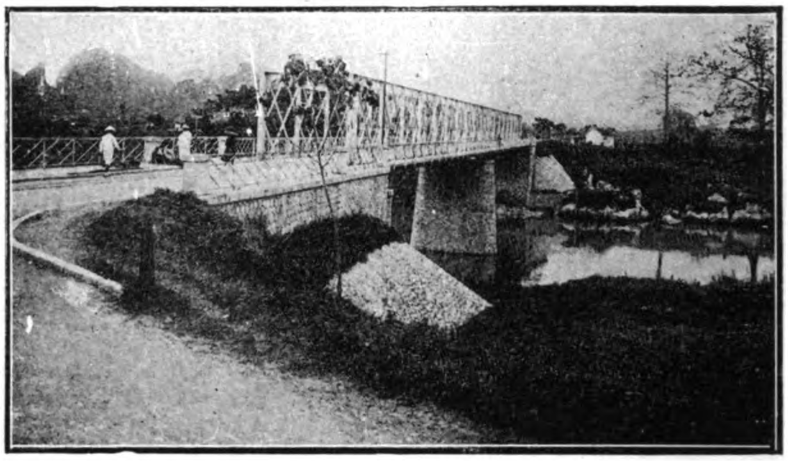


(Mee Cheung, Photographer.)

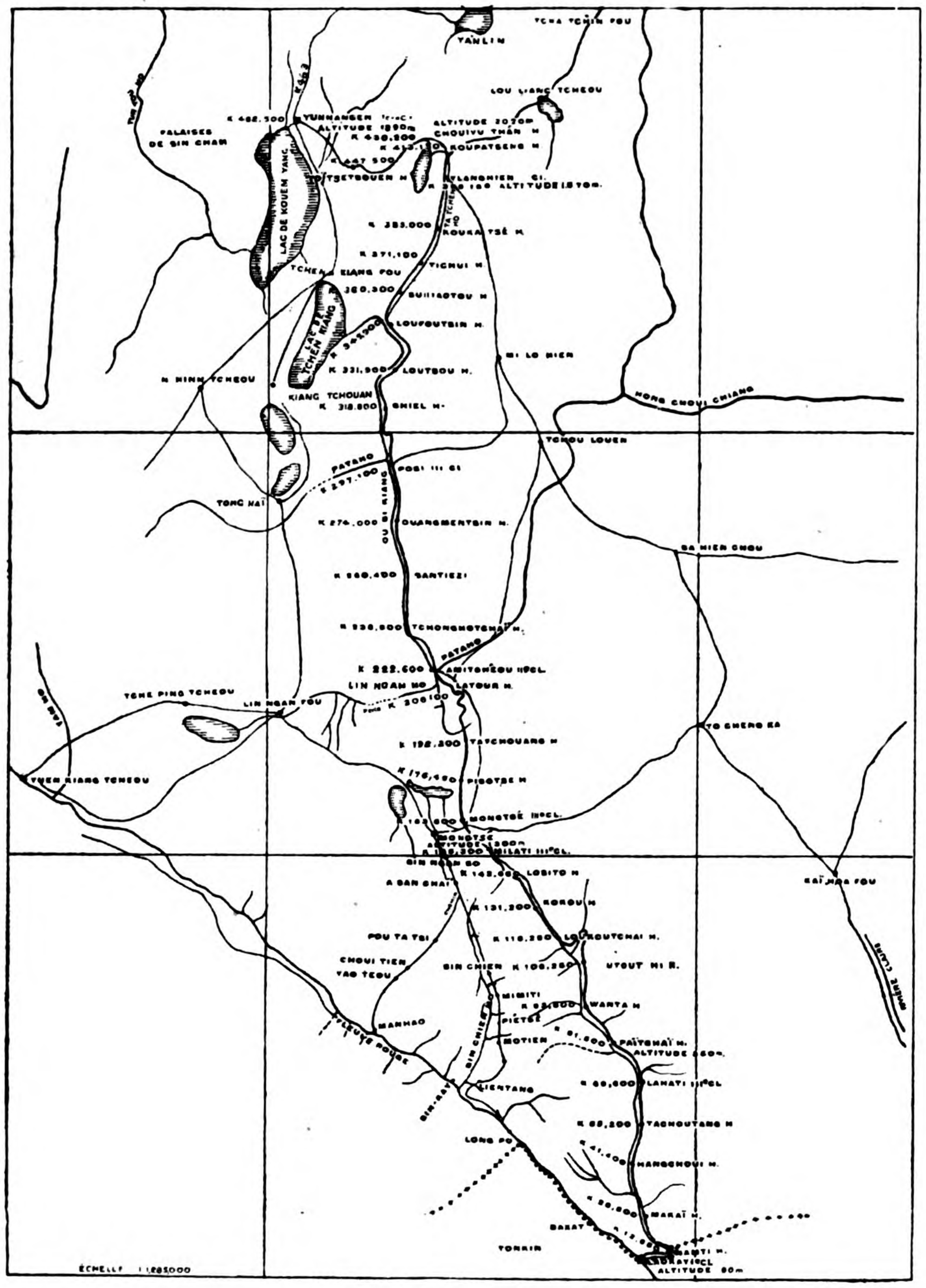
KOWLOON-CANTON RAILWAY, BRITISH SECTION.—PLANT AT TUNNEL



TONKING.—THE BEST RIVER AT TRAI-HUT ON THE LINE OF THE RAILWAY TO YUNNAN



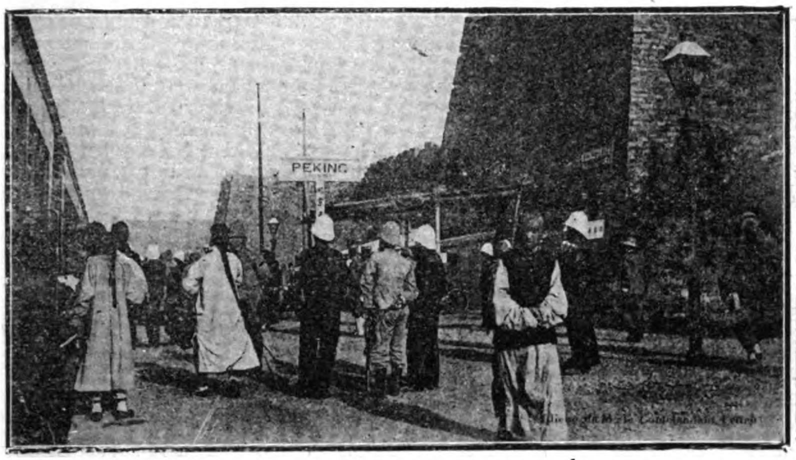
STATE RAILWAYS OF INDO-CHINA.—RAILWAY BRIDGE OVER THE SONG-KI-KONG RIVER NEAR LANG-SON



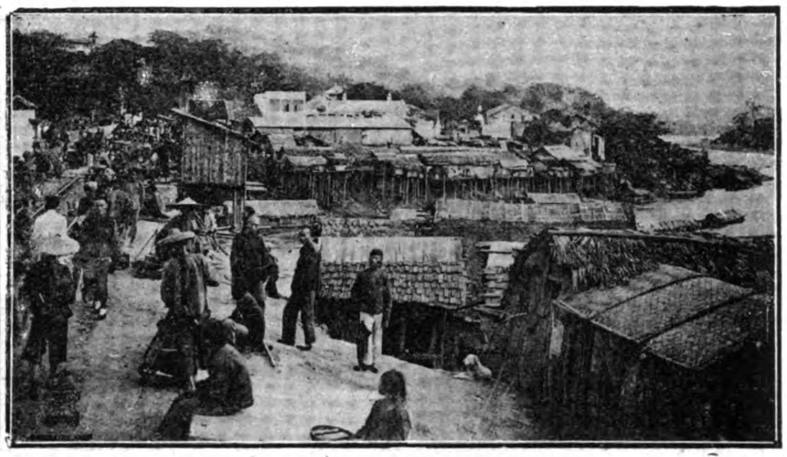
MAP OF THE YUNNAN RAILWAY

the American company from transferring its rights in the agreements to any other nationality. At this time the American Company made a proposal to the British and Chinese Corporation to merge their interests in China and this took the form of a proposition of an exchange of one-half interest in the Hankow-Canton for one-half interest in the Canton-Kowloon. Unfortunately, the war in South Africa intervened and British capitalists were not sanguine for foreign investment, and the result was that this opportunity for advancing the prestige of both countries in Southern China was neglected. The death of Mr. Brice had its effect on the enterprise of the company for the reason that he took a personal pride in the project and desired above all the advantages to be gained to see the American Railroad introduced successfully in the Empire. The American shareholders were skeptical about the enterprise on account of the disquietude among the Chinese that followed on the heels of the Boxer troubles. It was at this time that the Belgians saw their opportunity and easily managed to secure the controlling shares of the American Company, and upon the death of Mr. Brice the first evidence of Belgian predominance developed when General Whittier, the agent of the Belgian Syndicate, was chosen president in place of Mr. Parsons who had succeeded Mr. Brice. Then followed the introduction of Belgian engineers. Up to this time the construction included the completion of the Canton-Samshui Branch, a line by way of Fatshan 32 miles long. This branch was opened in 1904.

The Chinese Government was aroused over the control of the company by the Belgians until finally the American Government gave assurances that the company would remain controlled by Americans and Mr. John Pierpont Morgan responsible for the resumption of control. The Russian-Japan War broke out at this time and the Belgians became discouraged in their attempt to control the line as the fortunes of war indicated Russian defeat and necessarily the abandonment of her policy in regard to China. However, the inactivity on the part of the company and the unexplained delay in carrying out the work resulted finally in the conclusion of negotiations for the purchase of the line built and the cancelling of the concession. The sum of $6,750,000 gold was paid over to the company which covered the two surveys, the construction of 32 miles of track and in addition 50 miles of grading at the Canton end of the line. The cost of this work was estimated at $3,000,000 and the rights given up were valued at $3,750,000. This sum was raised by a loan of £1,350,000 from the government of Hongkong and with the understanding that British engineers should make up half the staff of the line should the Chinese employ foreigners on the work. Following the American Company, a Chinese Company was formed and the capital of $40,000,000 was subscribed for by the Chinese of which at least 20% was paid up, but owing to internal dissensions and lack of cohesion of the different elements, much delay has been occasioned.



CHINESE IMPERIAL RAILWAYS.—THE STATION AT PEKING



INDO-CHINA.—THE YUNNAN RAILWAY ENTRANCE TO LAOKAI

The completion of the Pingsiang branch connecting the mines with Wuchow by way of Liling was completed in 1905 by Chinese capital.

It is conceded that the apathy and generally unsatisfactory manner in which the American Company conducted its operations in China and the manner in which it withdrew from its agreement, has had much to do with the attitude of the Chinese government in the matter of granting concessions to foreigners, and nothing has done more to injure American prestige in China than the manner in which this company scuttled after the death of Mr. Brice, who, had he lived, would have taken the greatest degree of personal pride in carrying out the agreement to a successful conclusion, with the result that a monument to American enterprise would have been established in China and American prestige enhanced.

A correspondent of the *North China Daily News*, writing from Mongfukong in June of this year, has the following to say of the progress made on the Hankow-Canton.

"The completed survey to Yingtak gives a mileage of ninety-three miles. The track, from the ancient temple at Tai Miu, mainly follows the course of the river. When completed it will open the magnificent scenery of the North River to many who have hitherto been deterred from viewing it, because of the unsatisfactory accommodation of the present launches to Yingtak or the provoking slowness of the more commodious house-boat.

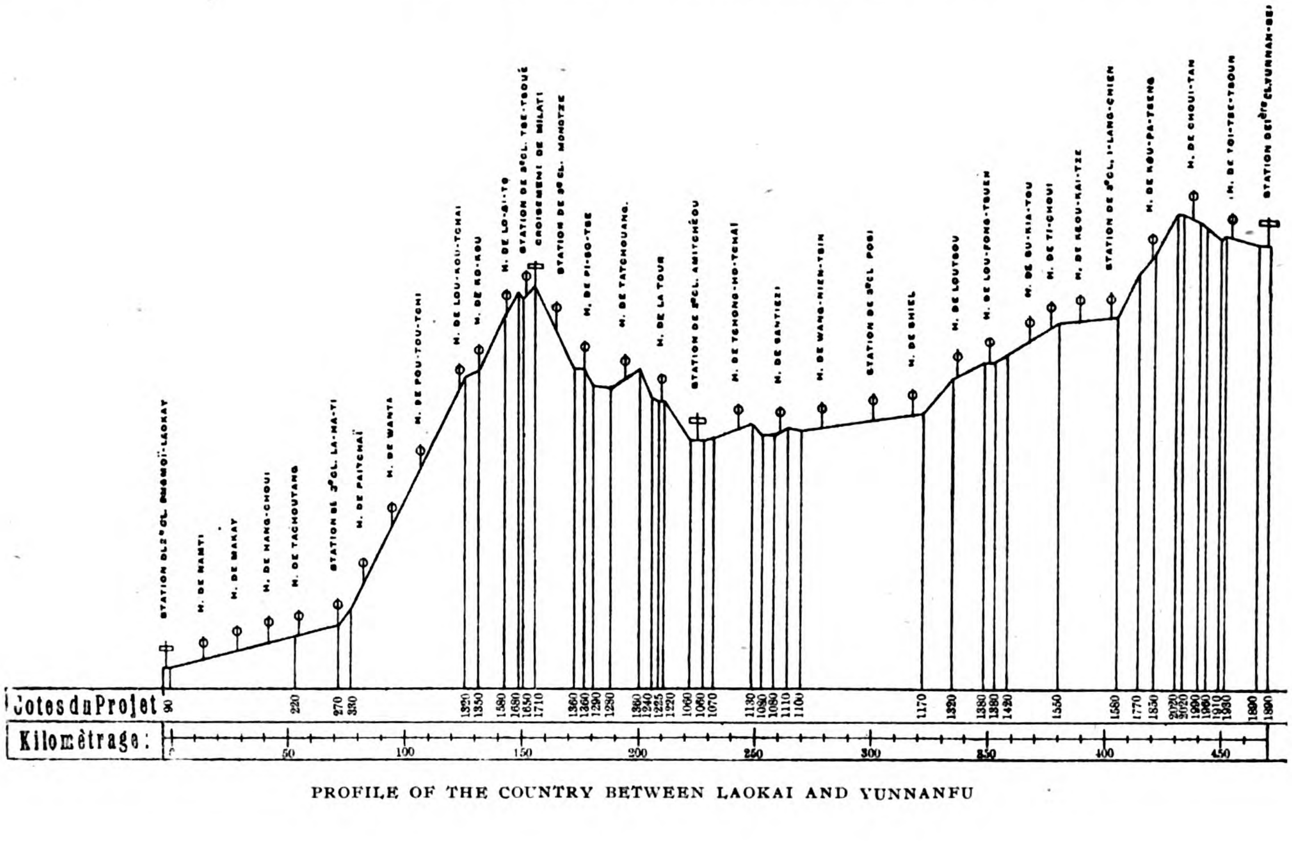
"The survey gives no less than three tunnels to Yingtak. One, 300 feet long, at Tai Miu, another of similar length at the Blind Boy's Pass—a few miles above the mouth of the Lienchow river—and a larger one of over 500 feet some five miles below the city of Yingtak. The latter is through a rather soft sandstone, but I am afraid that although some are speaking confidently of a completed railway running to Yingtak by X'mas, 1909, the arduous work of cutting these tunnels will mean that another year at least will be required before trains are running.

"The road is divided in ten-mile sections, and construction parties are now merrily working up to the seventh section from Canton. Wooden bungalows have been erected at Tai Miu to accommodate the resident engineer, and negotiations are in progress for land for similar buildings in the neighborhood of Yingtak.

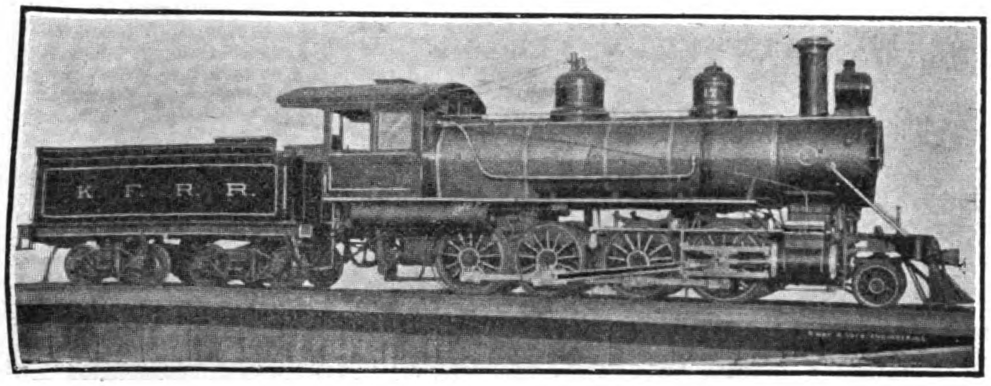
"The East river which enters the North River at Yingtak will require to be bridged. It is a waterway of considerable size, and, where the railway crosses it half-a-mile above the North River, it is some 800 feet wide. On the present plan this will involve the station being placed at least a mile from Yingtak city, half of which distance will be covered by ferry."

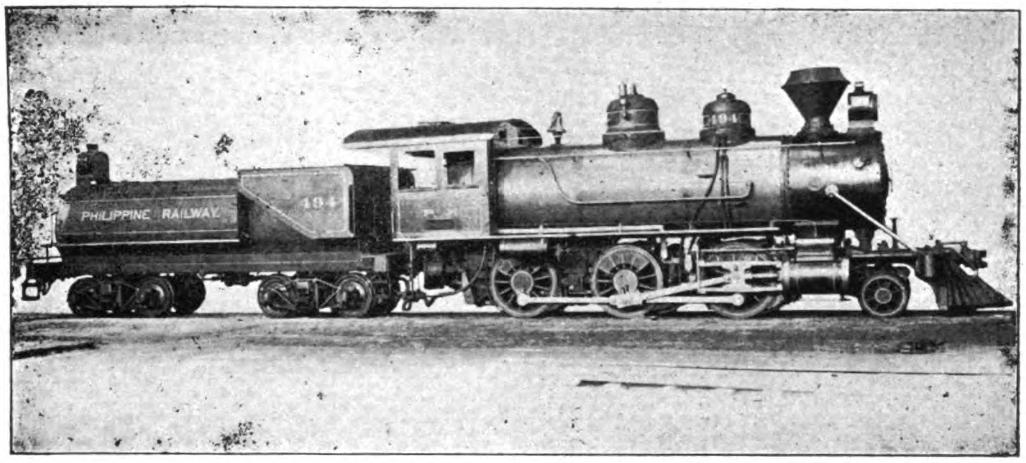
The Canton-Kowloon Railway. Among the five concessions acquired from the Chinese Government by the British and Chinese Corporation one of the most important was the railway to connect Canton and Kowloon, granted in 1899. The preliminary survey of this line was concluded a few years later, but it was not until 1906 that the construction of the Kowloon section was commenced. The entire line as surveyed runs about 20 miles in British territory and 100 miles in Chinese territory, the latter section being the line involved in the concession from the Chinese government. Some delay was occasioned in arranging a loan agreement with the Chinese Government, but finally provision was made for a loan of £1,500,000, redeemable in 30 years, at 94% of the face value of the bonds, the latter bearing 5% interest, secured by first mortgage on the undertaking and guaranteed by the Chinese Government. The administration was to consist of a Chinese managing director, a British engineer-in-chief and a British chief accountant.

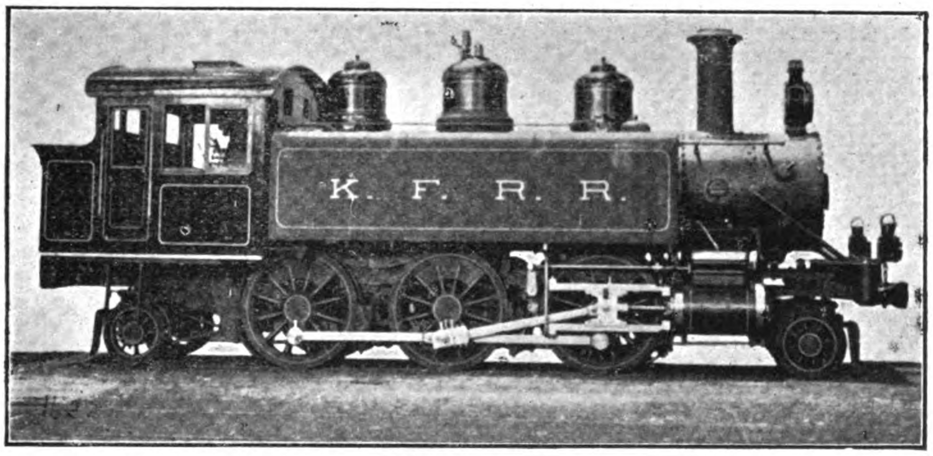
There is prospect that the entire line will be completed by 1910. During the year 1907 the total expenditure on the British section alone was $2,914,461, and up to the present time there was great activity in construction. Out of this amount over $1,000,000 has been spent on tunnelling. The most difficult work in this direction is that of the Beacon Hill tunnel. This tunnel is being pierced from both ends and when completed will be 5,100 feet long and 25 feet wide. For the present year the expenditure will reach about $4,000,000 which will bring the outlay up to about $7,000,000. Before its completion it will probably cost in the vicinity of $10,000,000. On the Chinese section last March headquarters were established in Shaklung and there is prospect



PROFILE OF THE COUNTRY BETWEEN LAOKAI AND YUNNANFU







LOCOMOTIVES IN OPERATION ON FAR EASTERN RAILWAYS BUILT BY THE BALDWIN LOCOMOTIVE WORKS

that the two sections will be completed about the same time. When the railway is completed to Canton it will place Hongkong in a most desirable position in relation to South China trade, and it is anticipated that the Hankow-Canton line will have been completed so that the full benefit of this connection will be realized.

The Shantung Railway. The lease of Kiaochow by Germany in 1898 for 99 years was the outcome of the murder of two German missionaries in the province of Shantung in 1897. The commander of the German squadron took possession and a demand made on the Peking government for the punishment of the governor of Shantung; an indemnity to the families of the victims and an amount to reimburse Germany for the cost of occupation, besides securing a preference for German railway enterprise in that province. These demands were practically acceded to and with the signing of the lease a railway convention was concluded which follows:

I.—The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province *via* Wei-hsien, Tsinchow, Pashan, Tsechuen and Suiping. The second line will connect Kiaochow with Chinchow, whence an extension will be constructed to Tsinan through Laiwuhsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II.—In order to carry out the above mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this Company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III.—All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided *pro rata* between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

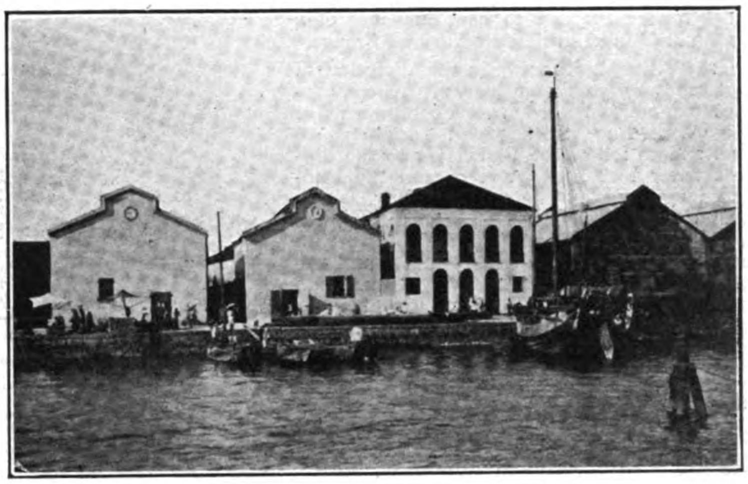
IV.—The Chinese Government shall allow German subjects to hold and develop mining property for a distance of 30 li from each side of these railways and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Luiwuhsien, etc. Chinese capital may be invested in these operations and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

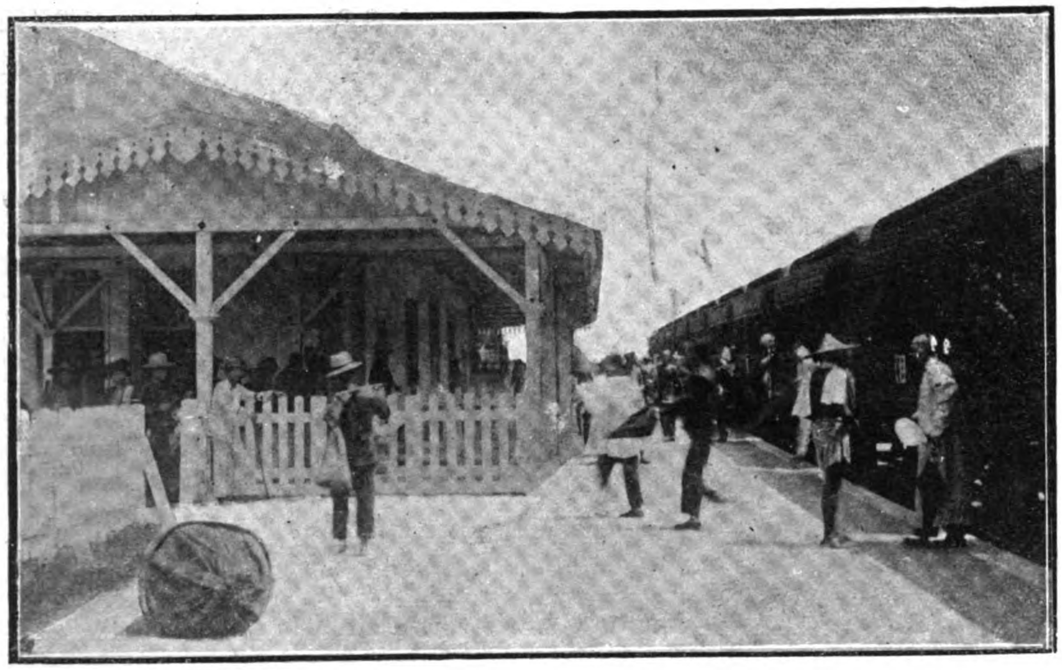
Then followed the development by the German government of the port of Kiaochow for which 8,500,000 marks were appropriated by the Reichstag. A company to be known as the Schantung Eisenbahn Gesellschaft was organized at Berlin with a capital of 54,000,000 marks. By its concession the Syndicate was to build a line from Tsingtau to Kiaochow and from the latter point by way of Weihsien to Chinanfu together with a branch to Poshan, within a period of five years, In addition the Syndicate was given an option to construct a line from Kiaochow to Ichowfu and another connecting Chinanfu and Ichowfu. In consideration of this concession the Syndicate agreed to turn over to the German government a part of the surplus profits after paying a dividend of 5%. The construction of the main line was completed in 1904, a distance in all of 240 miles. The branch to Poshun is 34 miles in length, making, in all, 274 miles approximately. The proposed line between Ichowfu and Chinanfu was abandoned in favor of the Anglo-German Syndicate in connection with the construction of the Tientsin-Pukow line. The Kiaochow-Ichowfu line was surveyed but further work was abandoned. The cost of the line was approximately $47,500 gold a mile. The editor of the *London and China Express* who visited Shantung last year makes the following interesting report:

"The Schantung Eisenbahn Gesellschaft runs between Tsingtau and Tsinan-fu, the capital of the province, and it has a branch line to Poshan for the mines there. The main line is 412 kilometers long. It is standard gauge and laid on iron sleepers. Moderate weight rails are employed, and at present no fast speeds are attempted. The journey in fact takes 13

BUND AT SWATOW



BUND AT SWATOW

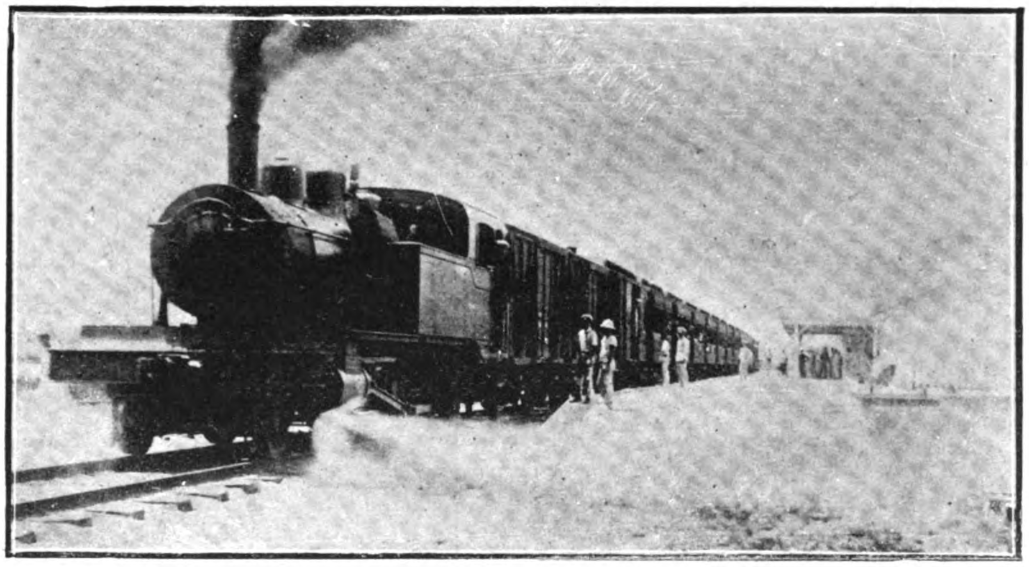


(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—THE STATION AT SWATOW

hours, of which nearly three hours were stoppages. Some acceleration of the service is to take place this autumn. Certainly what seemed to strike one at present was the unnecessarily long halts that occurred at some of the stations, and again the large number of stations. Other railways in China have greater distances as a rule between the stopping places, and one wondered whether all the stations could pay. A reference to the last issued report showed, however, that each was contributing a net revenue, so that their comparative frequency is justified. The stations are good, useful buildings, without ostentation, and adapted to the purposes for which they are designed. The bridge work over the many shallow rivers and streams, which in the rainy season often become raging torrents for a short time, is fairly solid, and the road bed in good order, certainly for the speeds at which we progressed. According to the last available figures, those for 1906, the stock comprised 30 locomotives, 107 passenger and baggage wagons, including three postal cars, and 720 freight cars. The latter include some fine covered vans for the transport of straw braid, specially constructed so as to take 15 tons of measurement braid. In 1906 there were carried 846,000 passengers, against a little over 800,000 in 1905, and 381,000 tons of goods, against 310,000 tons the year before. The coal transported was 208,000 tons. The distribution of petroleum is growing, but as yet only amounts to 10,000 tons a year. The passengers travelled on an average 70 kilometers in 1906, against 68 in 1905, and the goods haulage was 179 kilometres, being the same as for 1905. The receipts in 1906 were $2,169,000, against $1,912,000 in 1905. This meant $4,970 per kilometre, against $4,382 in 1905. The expenses per kilometre in 1906 were $2,089. The passenger fares, generally speaking, are moderate in amount. The surplus, aided by a higher exchange, came to m.2,642,000, and after passing 5 per cent. to reserve and 5 per cent. to special reserve a dividend of 4½ per cent. was paid on the capital of m.54,000,000. The staff in Shantung comprises 57 Europeans and 424 Chinese. The company has a complete range of workshops at Sypang close to Tsingtau, where all repairs to stock and other material can be carried out, as well as construction work up to a certain point. The company houses its employees here, and the workmen's dwellings are a model of what should be done for Chinese in this way."

French Railways in China.—The history of French influence in Tonking opens in 1787. It grew out of the internal troubles of Tonking and Annam. The French practically restored the deposed king of Annam to his throne under the protectorate of France. A revolution followed and French influence wavered until 1859 when Saigon was taken by the French who occupied other strategic points. Later a French protectorate was established over Camboja. The refusal of the authorities at Hanoi to permit a French merchant to export a cargo of copper and tin in 1871 and the failure of the governor of Cochin-China to secure an amicable settlement of the difficulty, led to the taking of Hanoi by assault, and in 1873 the Red River was declared open to trade. A treaty was concluded in 1874 by which Hanoi, Haiphong and Quinhon were opened to trade. The relations between the natives and the French continued unsatisfactory and the former did not hesitate to insult French representatives and show hostil-



(*Mee Cheung, Photographer.*)

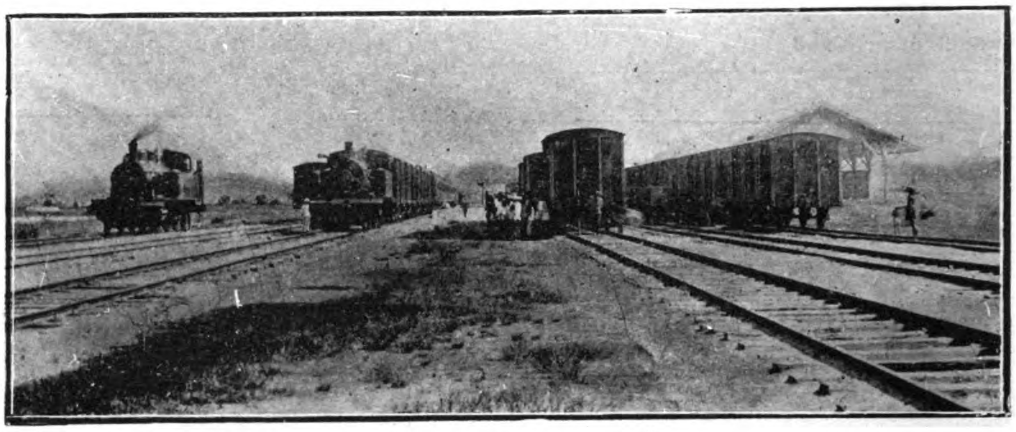
SWATOW-CHAOCHAO-FU RAILWAY.—TRAIN LEAVING STATION

ity to the latter. Fighting followed and finally in 1885 a treaty was concluded by which France agreed to maintain order in the provinces bordering on Annam. More territory was opened up to French trade, the privilege of opening up mines and to continue projected railways in Chinese territory was given France.

In 1898 the first move in the direction of active railway campaign began. A commission was appointed to consider a comprehensive scheme including a line from Haiphong to Hanoi and to follow the Red River to the Chinese territory. The right to extend the Phulangthuong-Langson line to Lungchow, a distance of 40 miles, into Chinese territory was recognized in 1897. The gauge of the line to Langson was increased to one meter and the extensions from Phulangthuong to Hanoi and from the former point to the Chinese frontier northward to Chinese territory were completed at an outlay of francs 20,000,000. In 1898 an agreement was made with the Chinese government whereby the French government acquired the right to extend its lines from the Tongking frontier to Yunnanfu. The cost was estimated at francs 101,000,000 and a French Syndicate was formed backed by the government to undertake the work. The Syndicate was guaranteed the sum of francs 3,000,000 annually for 75 years and the balance necessary was subscribed by the company and the Indo-Chine government in equal parts. The work commenced in 1901 and in 1903 the conditions under which the railway was to be built and operated in Chinese territory were satisfactorily adjusted. The concession for this line was to extend over a period of 80 years and the line was to be built with French capital without any Chinese guarantee. Work was then commenced on the Chinese section and it is expected that it will be completed by 1910. There is a project on foot to extend this line to Chengtu and again to Chungkiang.

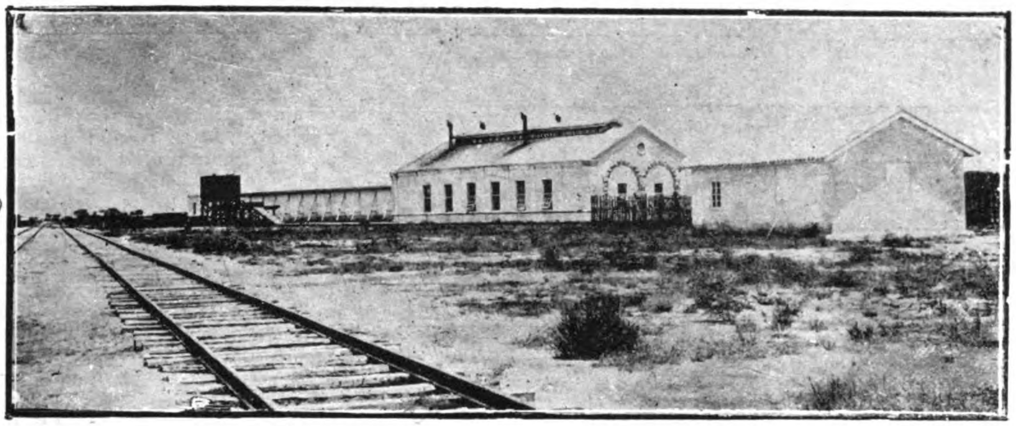
There is also the projected extension of the Hanoi-Langson line to Kwanchow by way of Lungchow and Nanningfu and from Nanningfu to Wuchow so as to tap the provinces of Kwangsi and Kwangtung by means of a number of projected feeders and connection with Kweilin and Canton. For the present there is little hope for favorable consideration of concessions by the Chinese government although the advantages to result from railways in this section are apparent.

The Shanghai-Nanking Railway.—This railway, which connects Shanghai and Nanking by way of Soochow, Wusieh and Chinkiang, was completed last March and forms the initial division of what is known as the proposed Yangtze Valley system. In 1898 a line connecting Woosung and Shanghai, a distance of 10.5 miles was completed with Chinese capital. About this time the British and Chinese Corporation had asked the Peking government for



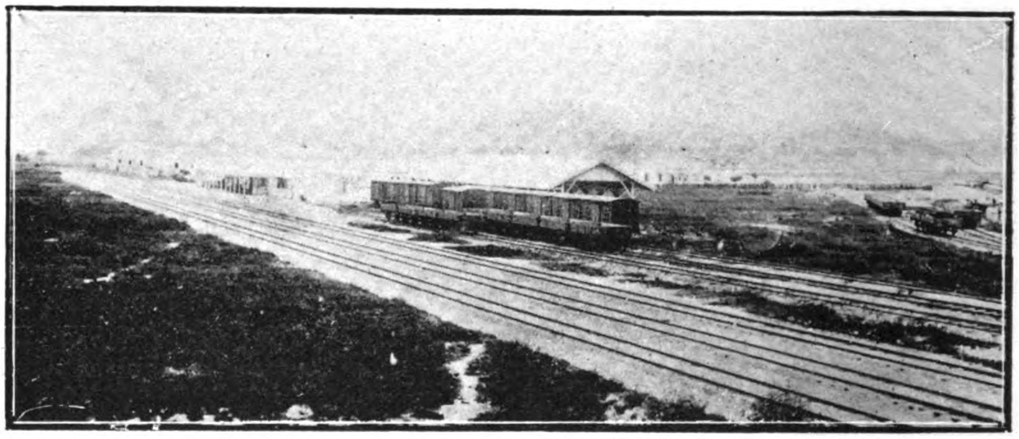
(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—VIEW OF THE YARD AT SWATOW



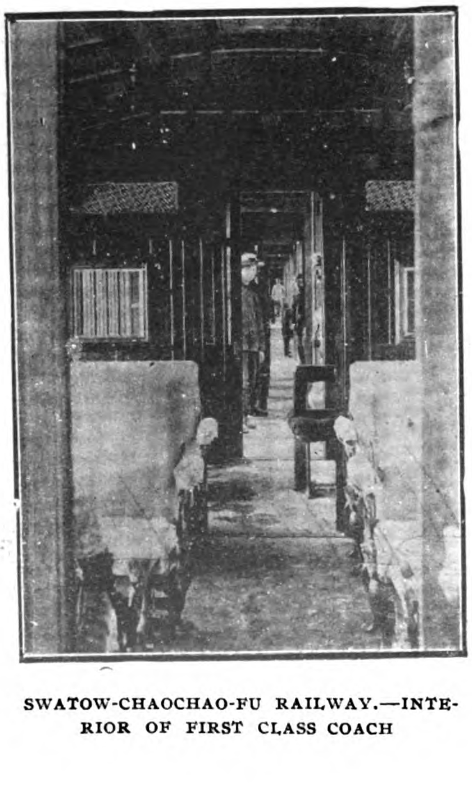
(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—MACHINE SHOPS

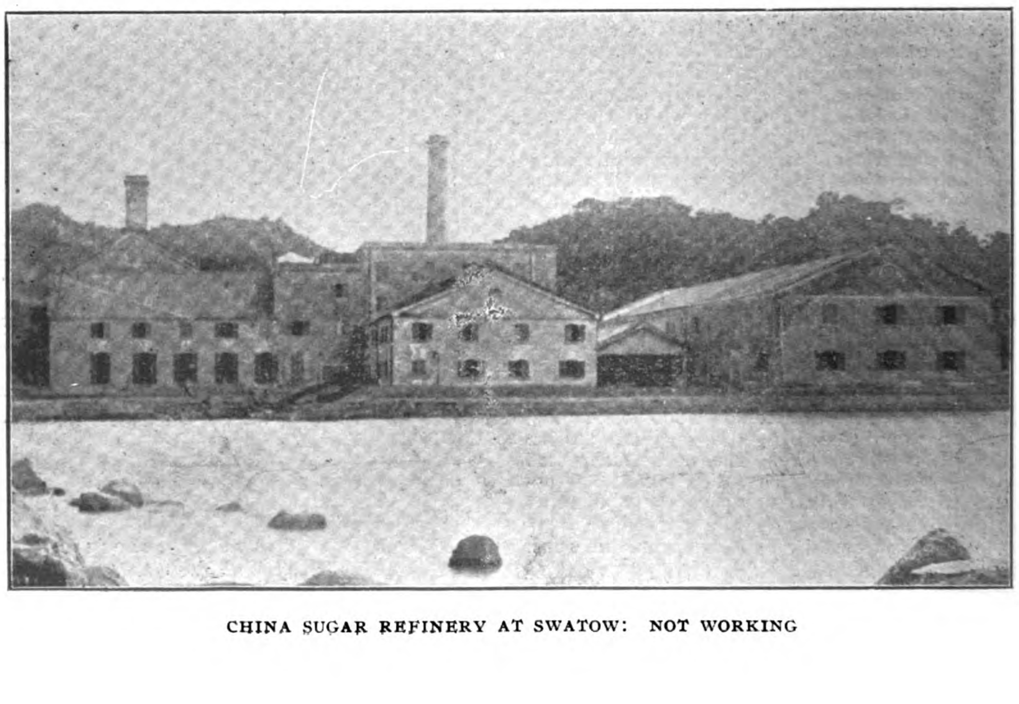


(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—VIEW OF YARD



SWATOW-CHAOCHAO-FU RAILWAY.—INTERIOR OF FIRST CLASS COACH



CHINA SUGAR REFINERY AT SWATOW: NOT WORKING

THE BUND AT AMOY.—THE LARGE BUILDING IS THE CHINESE IMPERIAL CUSTOM HOUSE, WITH THE OFFICES OF THE OSAKA SHOSEN KAISHA AND BANK OF TAIWAN AT SIDE

a concession to construct a railway from Shanghai to Nanking and during the year a tentative agreement was reached and a final agreement was concluded in 1903. The loan agreement provided for a loan of £3,250,000 secured by Imperial Bonds, to be taken up by the Corporation at 90% and carrying interest at 5% and redeemable at the end of 12.5 years at 102.5% and at the end of 25 years at par. The duration of the bonds was 50 years. In addition provision was made for the purchase of the Woosung-Shanghai line at Tls. 1,000,000 and have it included in the proposed system. A board of five commissioners was appointed, two members of which were chosen by the Corporation as well as the Engineer-in-chief. Mr. Collinson was selected for the last position. There were many difficulties to surmount in the construction owing to lack of co-operation on the part of the local authorities in securing the land for the right-of-way and overcoming the many prejudices of the people. However, with the exercise of great patience, the construction proceeded and in 1904 the first section of 12 miles between Shanghai and Naziang was opened, and in July, 1906, Wusieh was reached. In March of this year the entire line to Nanking was opened to traffic. The entire length of this line is about 200 miles.

Reference to the Shanghai-Hanchow-Ningpo Railway which was included in the concessions secured by the British and Chinese Corporation as well as a projected line between Pukow and Hsinyang (connection with the Pe Han) of these lines, may be made in connection with the Yangtze System. Several demands for the cancellation of these concessions by the local anti-foreign element did not meet with success and recently arrangements were made for the carrying out of the construction. The terms of the agreement recently concluded between Peking and the British and Chinese Corporation provide that the terminus of the line will be connected with that of the Shanghai-Nanking Railway in Shanghai or its vicinity, whence it will run to Hangchow and Ningpo, via Fungchingtsun, Kiashingfu, Hushu, Hangchowfu, and Kiangkau. The road is to be completed within three years.

The amount of the loan to be raised is £1,500,000 ($7,299,750), the interest on which will be 5 per cent. per annum, to be paid by the Chinese Government semi-annually. The loan will be applied to the building of the line alone, including payment for locomotives, carriages and all necessary equipment, and the running expenses before the completion of the line. Money to be used in buying land and paying interest must be provided by the Chinese Government from other sources.

During the construction of the railway the corporation shall be allowed to act as managers for the provision of all materials which must be procured in foreign countries for the railway. The corporation shall purchase all materials required in the open market at the lowest prices obtainable, but it is understood that all such materials shall be good and of satisfactory quality. If English made materials are equal in quality and price with those of other countries, all the necessary materials shall be purchased in England. If any Chinese products or Chinese made materials are equal in price and quality to those produced or manufactured in foreign countries, such products or materials shall be purchased in China in order to encourage Chinese industry.

It is stipulated that several sections of the

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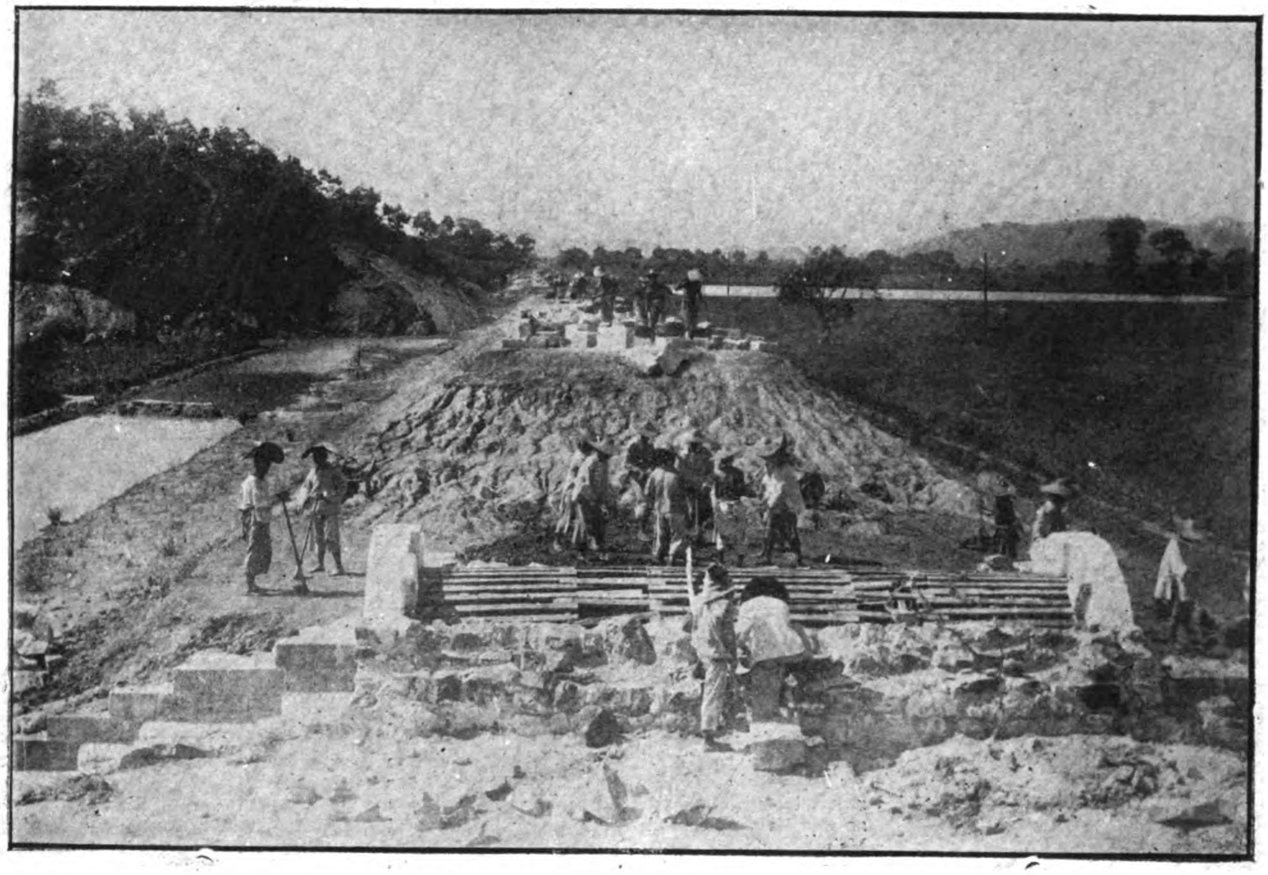
ANOTHER VIEW OF THE BUND AT AMOY



EARLY STAGE OF ROADBED CONSTRUCTION ON THE PEKING-HANKOW R. R.

line shall be constructed by the Chinese, and, therefore, the work of prospecting and surveying will only be undertaken with the permission of the Board of Posts and Communications.

In connection with the construction of the Shanghai-Hangchow-Ningpo line, the road being built from Wuhu to Kashing via Hangchow, a distance of 150 miles, by Chinese capital, and another line from Kashing to Hangchow being under construction and proposed extended to Ningpo, is evidence of the competition promised the British road by the Chinese in Anwhei, Kiangsu and Chekiang. In addition to the above, the Chinese are engaged in constructing a line from Shanghai to Kashing to connect with the Chekiang and Anhwei systems.

The Tientsin-Pukow Railway, which will connect the Shanghai-Nanking and the Shanghai-Hangchow and Ningpo systems with the Imperial Railways of North China, is one of the most important lines now under construction and will form a direct connection with Ningpo when the lines projeeted and under construction are completed. The construction is now under way and there is every indication that there will be no delay in bringing the enterprise to a completion with all speed.

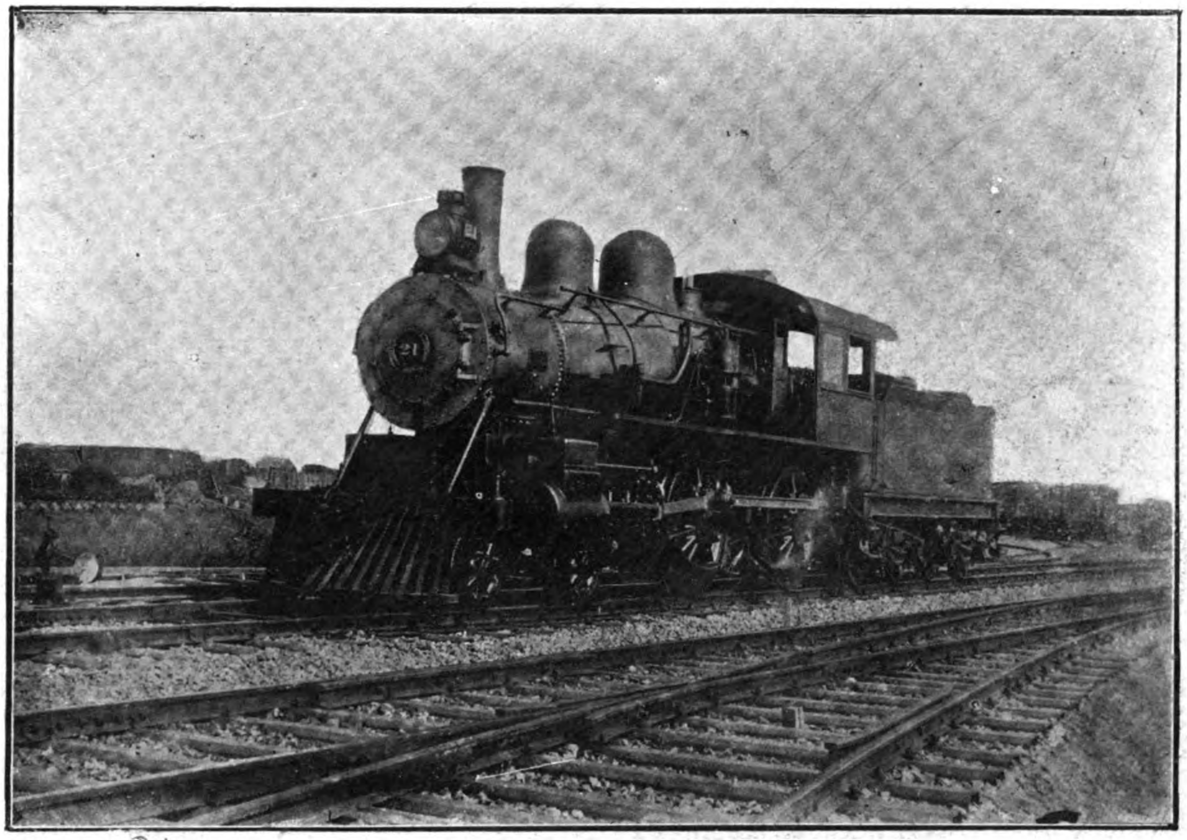
The final contract for the Tientsin-Yangtsze main line was signed this afternoon, says the Peking correspondent of the *Times* on January 12, by the Chinese Government and the representatives of the Deutsch-Asiatische Bank and of the British and Chinese Corporation. An imperial edict sanctioning the contract was issued this morning, the British Government having consented to the signature without waiting for the signature of the Chekiang Railway, discussions on the settlement of which are still proceeding between the Central Government and the provincial gentry.

The German section of the Tientsin-Yangtsze Railway will run from Tientsin through Techau, on the Grand Canal, and Tsinanfu, the capital of Shantung, to the southern border of Shantung. Thence the British section will run through Kiangsu province to Pukou, on the Yangtsze, opposite Nanking, a distance of 1,085 kilometres. The loan is for £5,000,000 with interest at 5 per cent., and is to run for 30 years. Roughly two-thirds of the capital is to be German and one third British, in proportion to the respective lengths of the sections. The price to China will be 93, and the security is a Chinese Government guarantee and certain provincial revenues. Redemption begins after ten years. A loan of £3,000,000 is to be issued within one year, and construction is to be finished within four years of the beginning of the work. The construction and control are entirely vested in the Chinese Government, with European chief engineers appointed by the Chinese to advise on construction, and European auditors appointed by the German and British groups to watch over the interests of the bond-holders. The syndicate receives a fixed sum in compensation for surrendering its rights to the profit granted in the preliminary agreement. The contract provides that subscriptions to the loan will be invited in Europe and in China of equal conditions, preference being given to the application of the Chinese Government if received before the issue of the prospectus.

"The final agreement shows how Chinese diplomacy has succeeded in altering the conditions of the preliminary contract of May 18, 1898. The Chinese recognize that such favorable terms have never been obtained before, nor such a clear admission of China's claim to control her railways without foreign interference."

The Peking Syndicate Railway.—The Peking Syndicate was organized in 1897 in London with a capital of $100,000 by British and Italian capitalists and had for its purpose the development of the almost inexhaustible mineral wealth of Shansi and Honan. After some delay negotiations were concluded in 1898 for a concession to develop the coal, iron and petroleum deposits within certain boundaries in the province of Shansi. A little later the concession was extended to cover that part of Honan north of the Yellow River. The capital of the company was then increased to $7,600,000. The question of transportation became one of the most important problems to solve and it became necessary to provide railway transportation from the mines to the most convenient waterways. The concession provided for this contingency in a general way and included the right to connect with the Yangtze. Surveys were made through Southern Honan to the Han River to Siangyang for an outlet, but it was found that the water was not deep enough for the purpose at Siangyang. Another line was surveyed to Pukow and this latter was recommended as the most desirable route and objective point. A survey was also concluded connecting Taokou at the head of navigation on the Wei River in Northeastern Honan to Tzechoufu in Shansi. The work of construction on the line was commenced in 1900, but this had to be delayed on account of the Boxer trouble. In 1902 work was renewed and a mining camp was established at Jamieson in Northern Hunan. With the establishment of this camp it was decided to construct a line from Taokou to Pashan, a slight modification of the regular survey. The line runs from Taokou to Hsinhsingianghsien by way of Weihu continuing through Jamieson to Pashan. From there it will be continued to Tzechoufu. The line from Taokou to Pusan was completed in 1905, covering a distance of 92 miles approximately. The Syndicate received so many setbacks in its endeavor to develop its concessions that finally arrangements were concluded whereby the Chinese made a repurchase. The following from the 1906 report of the Syndicate bearing on this subject may be of interest:

"The persistent refusal of the provincial authorities in Shansi to permit the syndicate to acquire land and commence mining was fully explained in last year's report. It was arranged that a prominent Shansi official, named Ting Niehtai, together with several representatives of the Shansi Bureau of Trade, and of the gentry, should come to Peking to meet Mr. Brown and endeavor to come to a



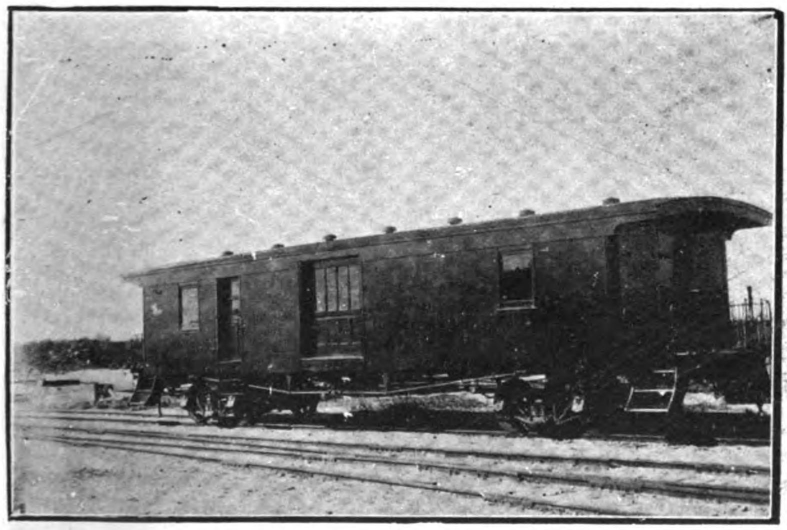
IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE
ENGINE NO. 21, BUILT BY THE AMERICAN LOCOMOTIVE COMPANY

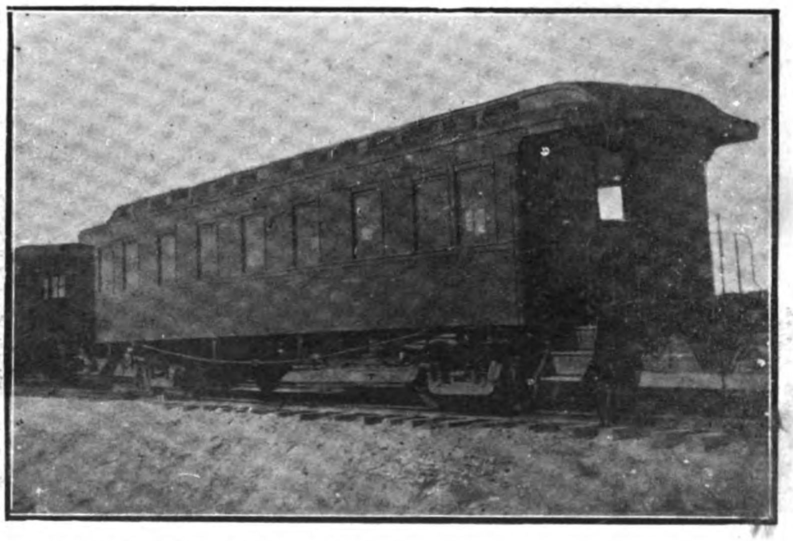
settlement. Mr. Brown was ultimately instructed that the directors would surrender the concession for the sum of £1,500,000 sterling, half in cash and the balance in guaranteed instalments, and he so informed the Shansi delegates. The counter offer made on their part was Tls. 600,000. Finally, on January 4, 1908, after the offer had been by successive stages raised to Tls. 2,625,000, the delegates informed Mr. Brown that this was their last word, and if it was not forthwith accepted they would withdraw from all further negotiations. At this stage the directors again sought counsel with the Foreign Office, and were informed that, in the opinion of Sir John Jordan, this was in truth about the limit of the Shansi delegates' offer (whose attitude, he added, had recently become very uncompromising), and that there was no prospect of getting the Central Government to add to it. Under these circumstances, the directors took the responsibility of instructing Mr. Brown to close with the offer, if better terms were not to be got. Fortunately, Mr. Brown was able, as a last effort, to get the offer raised to Tls. 2,750,000, and with that he closed, half to be paid on Feb. 21, 1908, and the other half in three equal yearly instalments, beginning May 19, 1909. The directors have not abandoned all prospect of yet doing work in Shansi. It is part of the agreement that if hereafter foreign capital is required for mining, iron smelting, or transport of materials (meaning, presumably, railways), the Peking Syndicate shall have the first option. The directors consider the stipulation a very valuable one."

Recent reports from Shansi announce the formation of a native syndicate with a capital of Tls. 5,000,000 to take over the mining interests, but so far the funds have not been realized.

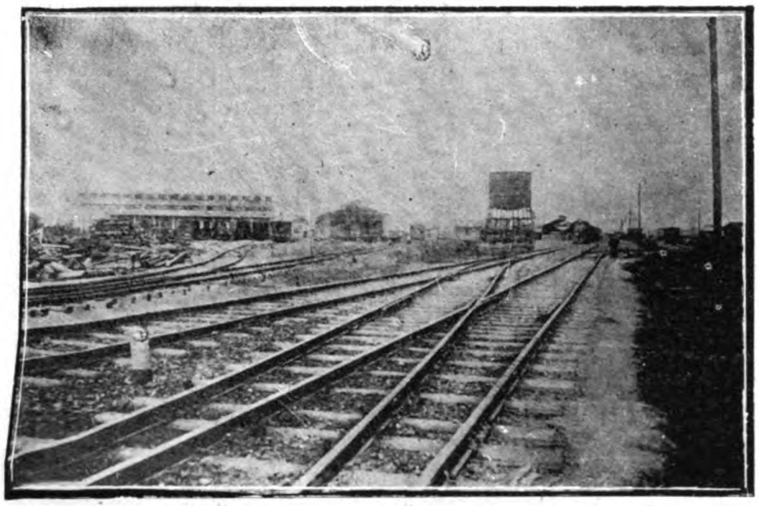
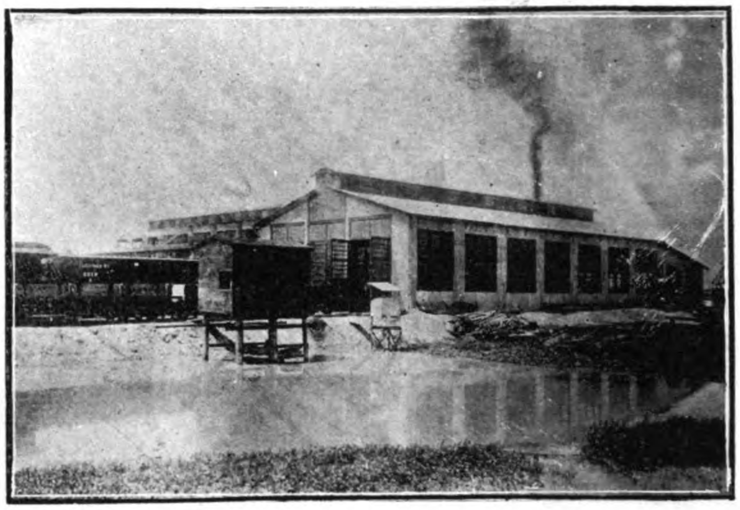
By the agreement made in July, 1905, the Chinese Government agreed to take over the line from the Syndicate and give in payment gold bonds bearing interest at 5% and the control of the road would remain with the Syndicate until the bonds are redeemed. The cost of constructing the road to Pashan was estimated at £614,600 and is represented by a loan of £700,000 which is accepted by the Syndicate at 90. The loan runs for thirty years and is redeemable after 1916. While the line has been handed over to the Chinese Railway Administration it continues to be operated by the Syndicate, the latter receiving 90% of the net profits. The continuation of the line to Tzechou and provision for its construction was also included in the agreement.

The construction of the line surveyed to Pukow may be made to conform to the proposed line of the British and Chinese Corporation from Pukow to Hsinyang. The two corporations have arrived at an understanding in regard to the development of railway interests north of the Yangtze which is practically an amalgamation.





IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE
BAGGAGE AND MAIL CAR SECOND CLASS PASSENGER COACH

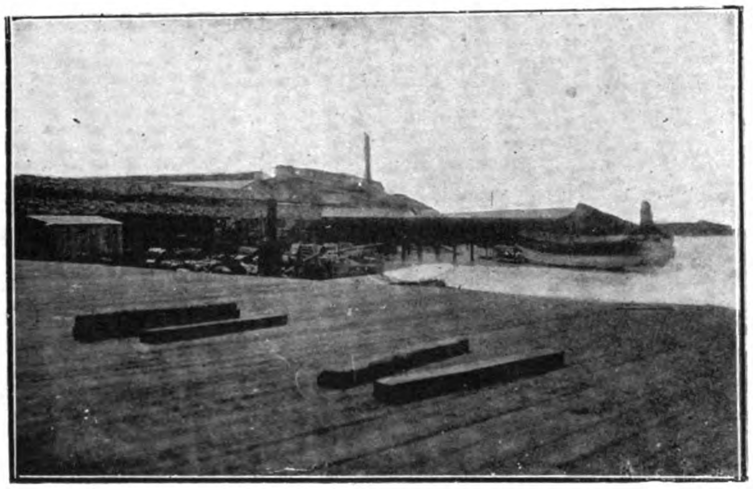
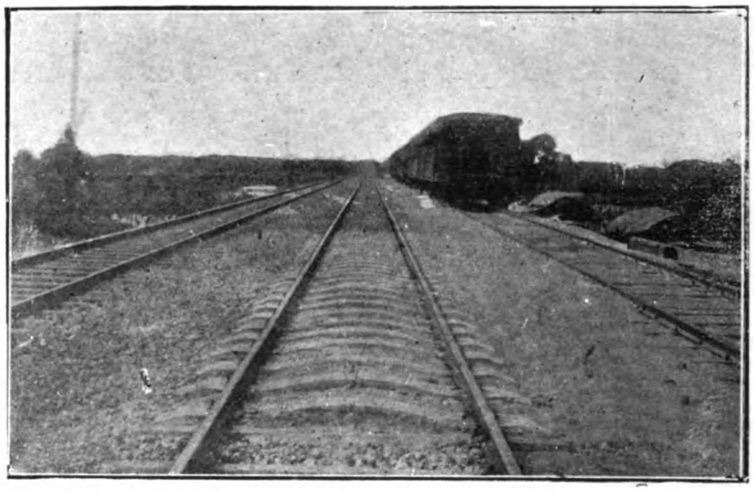



IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

THE SHEK-WAI-TONG YARD — EXTERIOR VIEW OF MACHINE AND CARPENTER SHOP

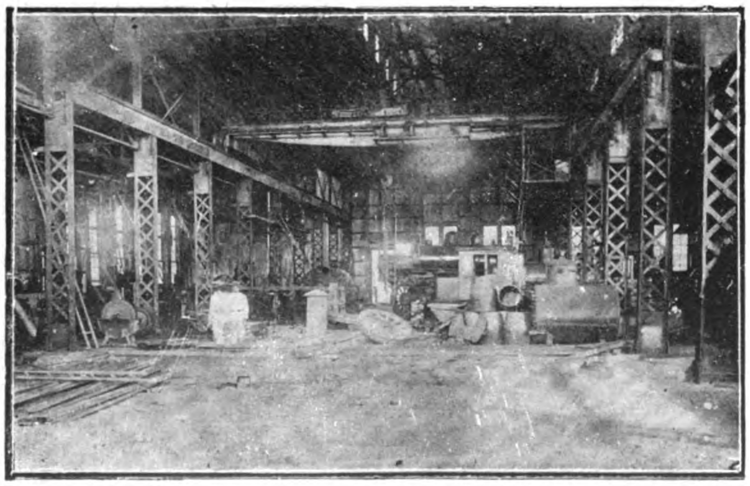
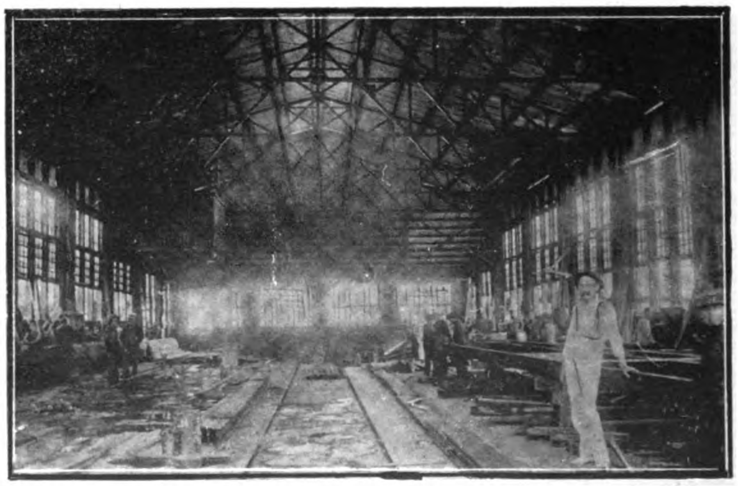
Before concluding this article, reference to the success attained by Chinese engineers and Chinese enterprise in the direction of railroad building is worthy of extended space. Perhaps no illustration would serve better than the progress made in the construction of the Peking-Kalgan line under the direction and supervision of Taotai Jeme Tien-yow, Ph. B. (Yale), A.M.I.C.E. (London), who is engineer-in-chief of the road. The entire staff of engineers on this construction are Chinese. In fact not a foreigner is employed in any capacity. The result of eleven months' work is shown in the opening and operating of the first section in September, 1906. This section is 32 miles in length. The Nankow pass offers the most difficult engineering problems and the tunneling when completed will be 5,370 feet in length and most of it through hard rock. Besides the tunnels there have been the most difficult cuttings through solid rock, some as deep as 80 feet. These difficulties have been surmounted by the engineer-in-chief wherever met, and the work has been carried on most economically. The *World's Chinese Student's Journal* of October, 1907, has the following to say of the permanent character of the work and the remarkably low figure at which it was accomplished:

"Turning to the more technical side of the work accomplished in this division, I was informed that there are altogether 21 bridges and 17 drains, aggregating 1,352 feet (linear) of openings. All the bridges are constructed of concrete, and it is hardly necessary to add they are all well-made and of a lasting character. In fact, it may be asserted that there is nothing

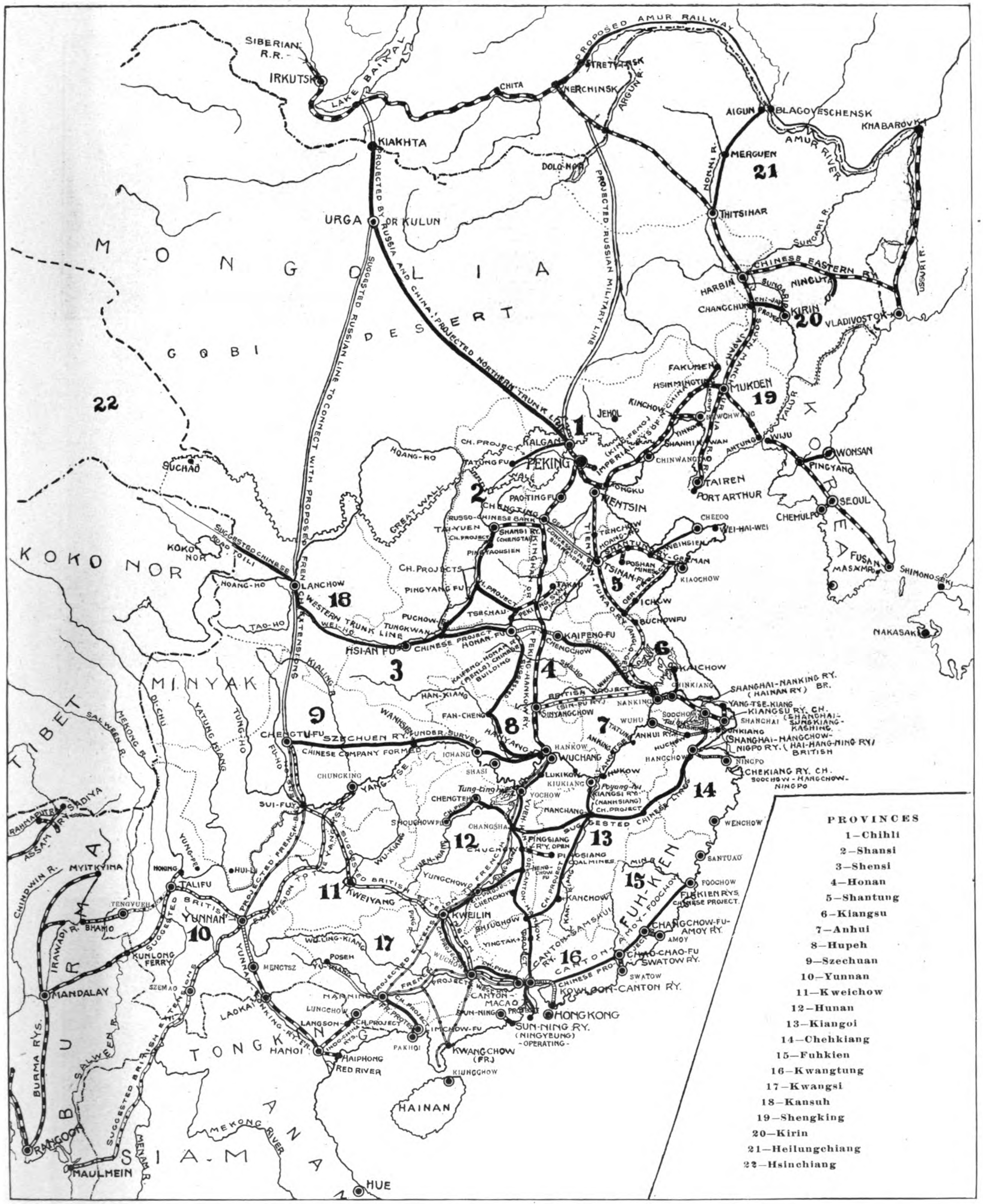
IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

TERMINUS AT SHEK-WAI-TONG, CANTON — LOOKING WEST FROM SHEK-WAI-TONG SHOWING CONCRETE TIES

IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

MACHINE SHOP — MACHINE SHOP SHOWING FRAME OF 60 FOOT STEEL CAR ON THE RIGHT UNDER CONSTRUCTION



FAR EASTERN REVIEW RAILWAY MAP OF CHINA

PEKING-HANKOW LINE.—THE YELLOW RIVER BRIDGE

of a temporary character about anything on the line. People in this world, however, very often associate exorbitant prices with good quality, and low prices with poor quality of materials and workmanship, believing in their simplicity that they are inseparable concomitants, but the attention of my readers is called to the low price paid in this division for earthwork and materials, which has enabled the construction of a first-class line at an unusually reasonable rate. For earthwork at the Liutsun end, it averages only 17 cents per fong, or, expressed in another way, 4 cents per cubic yard. At the Nankow end, where high embankments have to be made out of boulders, the average price is 27 cents per fong. Prices just as reasonable and low are charged for broken stones for concrete which varies from $1.20 to $2.00 per fong delivered on the spot, and sand, when collected locally, costs only the ridiculously low price of 30 cents per fong. The explanation is not far to seek, for on the Peking-Kalgan Railway, all these materials are supplied to the engineers *directly* by petty contractors, and there is, therefore, no opportunity for big contractors to monopolize the tenders and abuse their privilege by subletting and re-subletting their contracts, a system of 'squeezing' which has rendered engineering work so expensive in other parts of China. Nor are there interpreters of the character as has been reported elsewhere who receive Tls. 50 per mensem and retire after a year or so with half a lakh. There is not a *single* interpreter on the line, for they are not needed, and the absence of middlemen results in economy, unattainable in the nature of things where the personnel and the system are not similar."

In concluding an interesting article on the line, the *Students' Magazine* points with pride to the demonstration of the capacity of Chinese engineers to fulfill the mission of an engineer and to the general success of Chinese enterprise in the construction and operation of the Kalgan line up to the present time and the lack of friction, as conclusive evidence that the Chinese directed by competent Chinese engineers are capable of constructing and operating their own railways. The *Magazine* says:

"In concluding this brief and inadequate description of the Peking-Kalgan Railway, let me call the attention of the reader to the principal features of the line, features which render it conspicuous and distinct from the other lines in China. In the first place, there are no foreigners employed. This in itself should be and is a matter of national pride, but were our engineers unable to fulfill the demands of their profession, it would perhaps be a better arrangement to utilize foreign technical skill. In the present instance, however, there can be no question whatever that all the work of construction is carried out in good engineerlike manner. The materials used are of the best quality, while the structures bear nothing of the temporary character about them. To one who has travelled on the line, it is evident that the buildings too are of first class masonry.

"The second point is the rapidity of the construction. Within the short period of nine months, and it must be remembered that in the north of China three months in winter are frozen and no concreting can be done during those months, the construction train reached Nankow, a distance of 32 miles.

"In the construction of a railway, economy, which must not be confounded with cheapness, must always be kept in view. All railways which have been built and are being built in China must be paid for by our people, and our people are poor. A railway line is not a 'club house' or a private mansion, upon which the owner or owners may expend millions merely for the gratification of their sense of beauty or for the exhibition of their degree of wealth, but is a commercial investment. The amount of capital sunk in it must be commensurate to its power of paying dividends, and in the case of Chinese railways the redemption of the bonds must not for a moment be forgotten. Economy on the Peking-Kalgan Railway has been reduced almost to a science. There is no temptation to spend money recklessly, as no five per cent. commission on every tael spent can enrich the coffers of any corporation. There is no temptation to spend recklessly so as to necessitate the floating of another 'loan,' in which the Chinese Government receives Tls. 93, and the bondholders pay to the floaters Tls. 116. There are no engineers who must have foreign style residences, cement tennis courts, ice-making machines, palatial houseboats, and princely salaries before beginning work. There are no interpreters to browbeat the contractors, to make trouble with the local officials, and to make a pile in little or no time. All contractors deal with the engineers directly, and no squeeze system exists. The figures already given for the prices of materials explain in a large part why a railway built under our own supervision and by our own engineers is so very much more economical.

"Another very important advantage gained is the peaceful condition of coolies during construction, due to the absence of misunderstanding between engineers, the coolies, and the country people. No disturbance of any kind, still less of any rioting, has ever happened, and the work has proceeded so smoothly and quietly that the local officials are never called upon to suppress disorders or punish offenders. There can be no unpleasantness arising through the

interference of foreign consuls and the referring of insignificant incidents to the Ministers in Peking. One and all understand that the railway is a Chinese railway, that our own money is being spent, that the coolies are our own people, though they are coolies, that our officials are officials appointed by the Emperor, and the result is the work proceeds without a hitch of any kind.

"One should think that with Government patronage and official supervision, there could be no strict honesty, that graft, more or less, must penetrate the transactions. Wonderful to say, on this line nepotism is unknown, all employees are rated according to their qualifications, no matter whether a man comes with a recommendation from a Prince or no, and all contracts are by competitive tenders. Indeed, spies, employed by interested or unfriendly parties, are so keenly on the watch that nothing crooked could escape their eyes and be not immediately exposed, were those in charge inclined to be crooked.

"And lastly, student engineers are much encouraged for their work, and receive considerate treatment from their teachers. Steady and conscientious application of their knowledge (nearly all of them have received theoretical training in the engineering department of Tientsin University or elsewhere) ensures rapid promotions and good salaries. Their future is assured, for the demand of Chinese engineers is far above the supply."

The following table prepared by Mr. P. H. Kent and which appears in his interesting volume, **Railway Enterprises in China*, will be found of great value in reviewing the progress made in railway development up to 1907. The figures are approximate and among the railways under the caption "Railways Under Construction" is found the Shanghai-Nanking which was completed last March:

RAILWAYS CONSTRUCTED AND IN OPERATION

RAILWAYS	Length in Miles	Nationality of Capital Employed
Imp. Railways of North China...	588	Chinese and British.
Chinwangtao Branch............	4	British.
Chinese Eastern................	1596	Russian.
Peking-Hankow................	760	Belgian
Canton-Hankow; Canton-Fatshan-Samshui Branch..........	30	American.
Hsiling Branch................	36	Chinese.
Taokou-Tzechoufu; Taokou-Pashan Section (built by the Peking Syndicate)................	90 5	British.
Pinghsiang-Chuchow	66	Chinese.
Shantung Railway; Tsingtau-Chinanfu Branch..............	280	German.
Shanghai-Woosung..............	10.5	Chinese.
Hsinminting-Mukden...........	48	Japanese.
Swatow-Chaochowfu.......... .	30	Chinese.
	3539	

RAILWAYS UNDER CONSTRUCTION

†Shanghai-Nanking..............	200	British.
Laokai-Yunnanfu.....	280	French.
Macao-Canton..................	130	Sino-Portuguese.
Chenting-Taiyuanfu	160	French.
Kaifengfu-Honanfu Hsianfu Railway; Kaifengfu-Honanfu Section........................	140	Belgian.
Wuhu-Hangchow................	150	Chinese.
Canton-Kowloon................	100	British.
Peking-Kalgan..................	125	Chinese.
	1285	

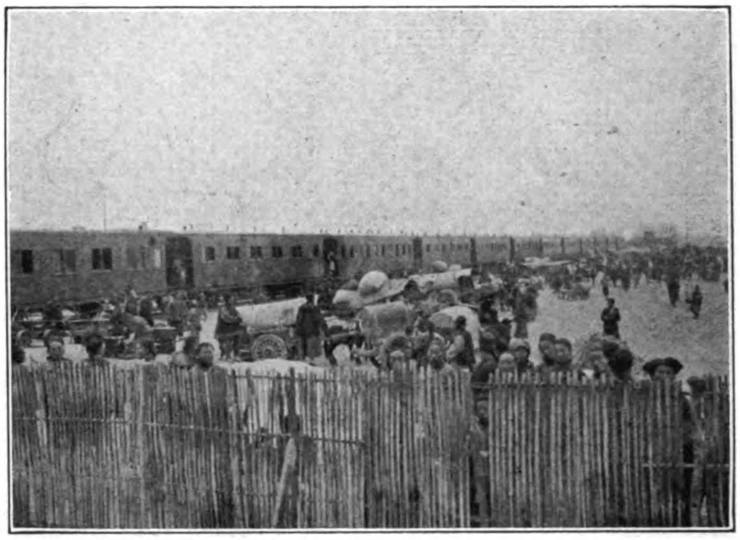
RAILWAYS PROJECTED AND SANCTIONED BY THE CHINESE GOVERNMENT

Canton-Hankow..................	822	Chinese.
Hankow-Chengtu	800	Chinese (and failing Chinese, Anglo French).
‡Tientsin-Nanking..............	600	British and German.
Shantung Railway (South Branch)	200	German.
Pukou-Hsinyang.	270	British.
Soochow-Hangchow-Ningpo......	200	British.
Taokou-Tzechoufu; Pashan-Tzchoufu Section	35	British.
Kiangsi Railway; Kiukiang-Nanchang Section..................	76	Chinese.
Langson-Lungchow..............	46	French.
Burmah-Yangtze.................	700	British.
Kaifengfu-Honanfu-Hsianfu; Honanfu-Hsianfu Section..........	200	Belgian.
Kwangchengtze-Kirin Section ..	75	Chino-Japanese.
Antung-Mukden....................	150	Japanese.
	4174	

*The historical date for this article was secured largely from this interesting and valuable work.

†Completed March, 1908.

‡Tientsin-Pukow under construction.



ARRIVAL OF TRAIN AT CHUCHOW STATION.—PEKING-HANKOW RAILWAY

SUMMARY

Constructed	Under Construction	Projected	Total
3539	1285	4174	8998

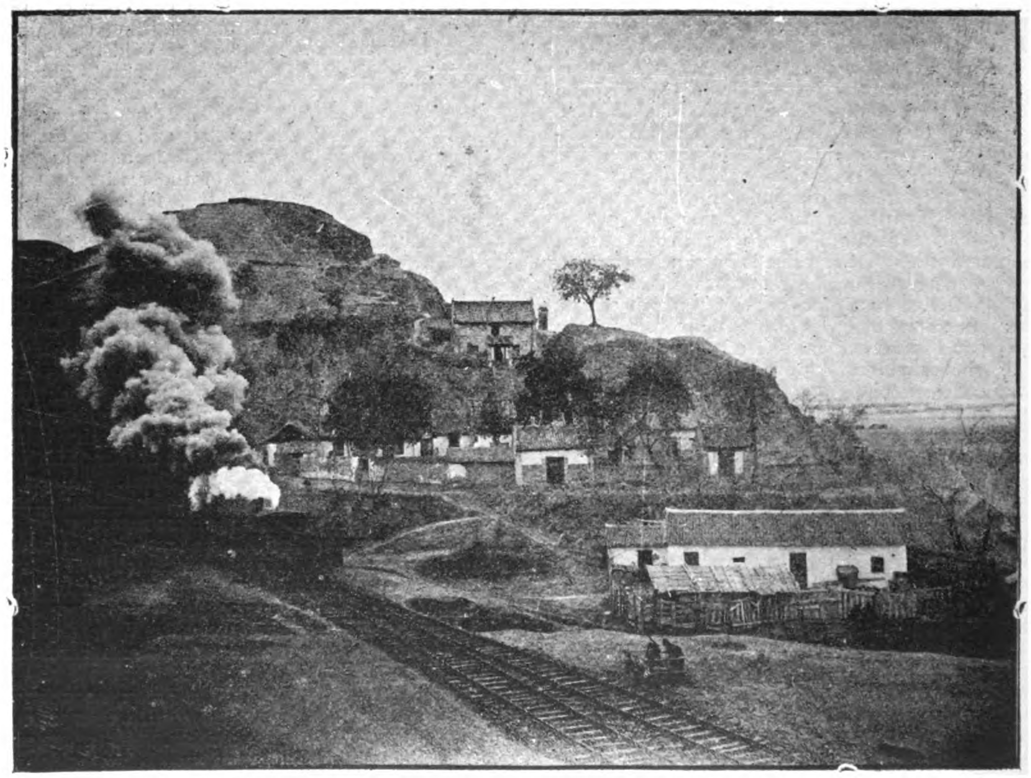
The Tientsin-Pukow Railway Loan Agreement.

The following is a translation of the Agreement between the British and Chinese Corporation Ltd. and the Wai Wu Pu signed in Peking on Jan. 13, 1908, or the tenth day, twelfth moon, thirty-third year of Kwang Hsu:—

1.—The Chinese Government hereby sanctions the German and British Banks Syndicate issuing a loan for five million sterling, £5,000,000, at 5% which shall be styled the "Chinese Government five per cent Tientsin-Pukow railway loan."

2.—This loan is to furnish the capital wherewith to construct a Government railway from the vicinity of Tientsin to connect the existing Peking-Shanhaikwan line via Techow, Chinanfu to Ihsien along the southern boundary of Shantung, and this line will hereafter be known as the northern section of the Tsin-Pu or Tientsin-Pukow line; and from Ihsien to Pukow on the bank of the Yangtze opposite Nanking which shall hereafter be known as the southern section of the Tsin-Pu railway. The total distance of the two sections is 1085 kilometers or equal to 2170 Chinese li. The survey of the line will be subject to revision by the Director General.

3.—The capital will be used for the construction of the line, the purchase of the land and rolling stock, and to meet the current working expenses of the line when in operation, also the payment of the interest on the loan while the line is being constructed. The period of construction calculating from the date of commencement is estimated as four years, such commencement to take place within six months of the signing of the agreement, and within this period the syndicate shall place £500,000 at the disposal of the Director General, the money to be drawn by him either in China or from



SOUTH TUNNEL ENTRANCE TO THE YELLOW RIVER BRIDGE.—PEKING-HANKOW RAILWAY

Reproduced from Far Eastern Review.

SHEN TUN-HO, CO-DIRECTOR OF IMPERIAL CHINESE MARINE AND RAILWAY BUREAU

Europe as a first instalment of the loan. The whole or part of this £500,000 shall be deducted with interest from the proceeds of the first sale of the bonds and bear interest not exceeding 6%.

4.—The interest of the loan, which is 5%, shall be payable from the date of issue of the loan and during the time of construction, payable half-yearly. It will be paid by the Chinese Government either from the proceeds of the loan or from other sources as considered advisable.

5.—The loan is made for a term of 30 years, the repayment to commence at the end of ten years, and with the exceptions noted in Art. 6 of this agreement the amortisation to the banks concerned, Deutsch Asiatische Bank, and Hongkong and Shanghai Banking Corporation, Ltd., shall be made in half-yearly instalments out of the revenue of the line or from such other source as the Chinese Government may decide, payment being made in all cases 14 days previous to the date due calculated from the date of issue.

6.—After the expiration of ten years the Chinese Government may if it so desire redeem the outstanding amount of the loan or any part of it any time before the twentieth year on the payment of a premium of 2½%, or £102 10s. on every £100 bond. After the twentieth year redemption can be made without premium, but in any case six months' notice must be given by the Chinese Government, and the method of redemption shall be by the drawing of additional bonds at each ordinary drawing.

7.—The Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation having been appointed representatives for the loan by the British and German companies to receive the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5, they shall be made, in accordance with the amounts and dates attached to this agreement by the Director General of the Railway, in Shanghai or in Tientsin, in Shanghai or Tientsin Sycee sufficient to meet such payments in gold in Europe, exchange for which shall be settled with the said Banks on the same day. The railway administration may arrange exchange within six months previous to any due date for the repayment of interest and principal. Payment can be made in gold if the Chinese Government have gold funds in Europe, not remitted from China for the purpose, and desire so to use them.

The Hongkong and Shanghai Banking Corporation and Deutsch Asiatische Bank will receive a commission of one quarter per cent for their expenses as Agents.

8.—The Imperial Government of China engages that the interest and principal of this loan shall duly be paid in full, and if the revenue of the Railway or the proceeds of the loan do not suffice for full payment, the Director General shall memorialise the Throne on the amount of deficiency and make payment to the Banks on the date upon which funds are required.

9.—The loan is secured in the following manner:—

1. By lekin and internal revenues of the province of Chihli, 1,200,000 Haikuan Taels a year;

2. By lekin and internal revenues of the province of Shantung 1,600,000 Haikuan Taels a year, and

3. By the revenue of the Nanking Lekin Collectorate 900,000 Haikuan Taels a year and of the Huai-an Native Customs 100,000 Haikuan Taels a year in the province of Kiangsu.

The provincial revenues as above are declared free from all other loans, charges or mortgages.

So long as principal and interest of the loan are regularly paid, there shall be no interference with these provincial revenues. If principal or interest of the loan be in default at due date, then, after a reasonable postponement internal revenues of the three provinces sufficient to provide the amounts above stated shall forthwith be transferred to, and be administered by, the Imperial Maritime Customs, in the interest of the bondholders. And so long as this loan or any part thereof shall remain unredeemed, it shall have first claim over all future loans, on the above mentioned revenues of the three provinces. It is understood and agreed that so long as this loan in unredeemed the Railway shall under no circumstances be mortgaged nor its earnings given as security to any other object.

Should the Government decide to revise the Customs tariff with the view of abolishing likin, this agreement will not oppose such revision except that the likin required as security for the loan must not be decreased or abolished without previous arrangement with the Syndicate and after other source of revenue has been guaranteed.

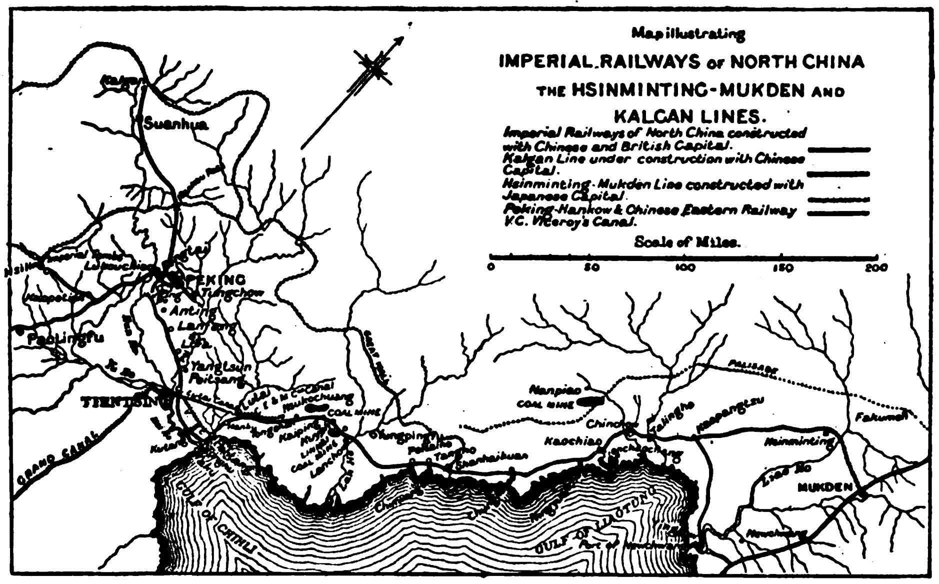
10.—The Syndicate is authorized to issue bonds for the total amount of the loan and the form of the bonds shall be arranged in consultation with the Director General or the Chinese Ministers in London and Berlin. The bonds shall be printed in Chinese and English or Chinese and German and be signed by stamp of the Director General and his seal, the Chinese Minister in London or Berlin shall also put his seal upon each bond with his signature, as a proof that the sale of the bonds is authorized by, and is binding upon the Chinese Government. The representatives of the Syndicate in London and Berlin shall countersign the bonds as agents.

In the event of bonds being lost, or destroyed, the Syndicate shall notify the Director General and the Chinese Minister in London and Berlin, who shall authorize the Syndicate to insert an advertisement in the public newspapers notifying that payment of the same has been stopped according to the customs of the country concerned, and if the bonds are not recovered the Director General or the Chinese Minister in London or Berlin, shall issue duplicate bonds.

11.—All bonds and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imposts during the currency of this loan.

12.—The Syndicate is authorized to issue the regulations of the loan as soon as possible after the signing of this agreement, and the Chinese Government will instruct the Chinese Ministers in London and Berlin to assist the Syndicate in any matters connected therewith and to sign the regulations of the loan.

13.—The loan will be issued in two or more instalments of bonds, the first issue of £3,000,000, as soon as possible after the signing of this agreement and not later than twelve months from the date. The price to the Imperial Chinese Government of the first instalment shall be ninety three per cent of the face value. Further issues shall be effected in time to prevent any delay of the work of



construction, in amounts to be determined by the Director General, and the price payable to the Chinese Government in respect of these series shall be the same rate as to the public, less charges of 5½ points by the Syndicate. Subscriptions will be invited by the Syndicate in Europe and in China both from Chinese and Europeans on equal conditions, preference being given to the application of the Chinese Government if application is made before the issue of the regulations.

14.—The income of the loan shall be paid to the account of Tientsin-Pukow Government Railway with the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank in China, London or Berlin, as the case may be. Interest at the rate of 4% shall be granted on the portion of this account kept in London and Berlin, and interest on the portion kept in China will be allowed at the Banks' rates for current account or fixed deposits, as may be arranged. In addition to interest and commission the Banks will hold the funds for the Director General, who shall not draw more than £20,000 without giving the Banks ten days notice. Expenditure of funds shall be in amounts to suit the progress of construction of the railway by orders on the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, signed by the Managing Director of the Railway or, in his absence, by his representative, and accompanied by his certificates stating the nature and cost of the work to be paid for.

Such amounts as may be required in China may at any time be transferred by the Managing Director, at his discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, and the transferred funds shall remain on deposit with those Banks until required for Railway purposes.

The accounts of the Railway will be kept in Chinese and English in accordance with modern methods, and will be supported by all necessary vouchers. During the period of construction the accounts will be open at any time to an inspector appointed and paid by the Syndicate. His duty will be to certify the due expenditure of the funds in accordance with the provisions of Article 3 of this Agreement. The Railway Administration will publish annually at the end of the financial year a report in the Chinese and English of the working accounts and receipts of the railway, which report may be purchased by the public on application.

15.—If during the time of construction the proceeds of the present loan should not be sufficient to complete the construction and equipment of the line, the deficiency shall be provided, in the first place, from such Chinese funds as may be available so as to permit continuance of the work any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Syndicate. The interest and other conditions of such supplementary loan will be the same as in the present agreement. If after the completion of the line there should be a balance at credit of the railway account, such unused balance will be transferred to the credit of the interest reserve fund mentioned in Article 21 as a provision for payments for which the Imperial Chinese Government is responsible under this agreement.

16.—If, before the first sale of the bonds any political or financial event should take place causing the prices of Government stocks to fall so as to make the successful issue of the loan impossible on the terms named, the Syndicate shall be granted further extension of time, but not beyond eighteen months from the date of this agreement. If within this time limit the first bonds have not been issued, then this contract shall become null and the money paid by the Syndicate under the provisions of Article 3 shall be by the Chinese Government with interest, but without any other compensation or remuneration whatsoever.

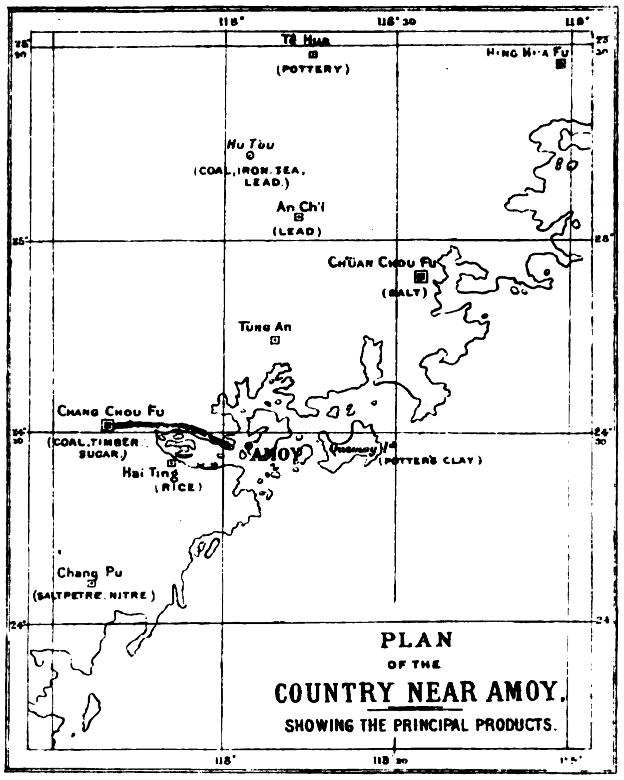
17.—The construction and control of the railway will be entirely in the hands of the Imperial Chinese Government. For the work of the northern and southern sections respectively the Chinese Government will select and appoint fully qualified German and British Chief Engineers, acceptable to the Syndicate. These two Chief Engineers shall be under the orders of the Managing Director, or his duly authorized representative, and will carry out all the wishes of the Railway Administration with regard to the plan and construction of the line. They must pay all due respect to the Director General and the Managing Director. The terms of their respective agreements will be arranged by the Director General on his sole authority.

On the completion of the line the Imperial Chinese Government will administer both sections as one undivided Government Railway and will appoint an Engineer-in-Chief, who during the period of the loan shall be a European, without reference to the Syndicate.

18.—For all important purchases of railway materials tenders shall be called for by the Managing Director; and the Banks and Syndicate as Agents shall purchase the materials required on the terms most advantageous to the Railway, and shall charge the original cost of same with a commission of five per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

The Railway Administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the northern and southern sections respectively. The Railway Administration reserves the right, while paying the above stipulated commission to the said Agents in respect of all purchases of foreign materials, to avail itself of the services of other Agents in China or abroad should it see fit to do so.

No commission shall be paid to the Agents except as above provided; but it is understood that the Railway Administration shall provide



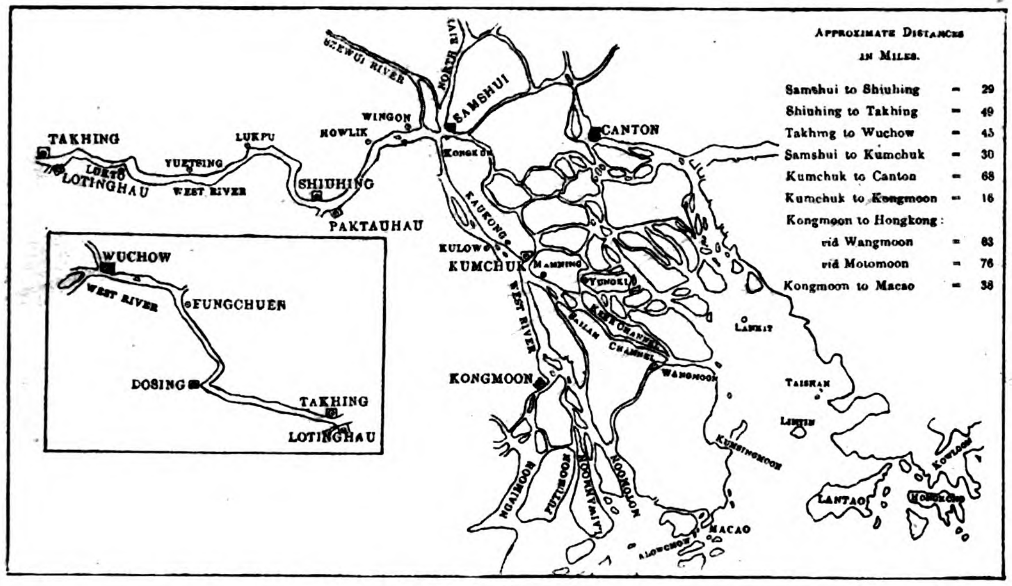
out of Railway funds for the remuneration of Consulting Engineers whenever their services are engaged.

With a view to the encouragement of Chinese industries, preference will be given, at equal prices and qualities, over British, German or other foreign goods to Chinese materials, and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

19.—Branch lines in connection with the railway line mentioned in this Agreement may

be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, if thought advisable, and if foreign capital is required preference will be given to the Syndicate.

20.—The Syndicate is granted the right to retain two hundred thousand pounds sterling (£200,000) out of the first issue of the bonds instead of 20% of the profits of the railway as first proposed. No further payment in respect of profits will be allowed on any subsequent series of the loan, or on any supplementary loan.



WEST RIVER DELTA

21.—After payment of interest and repayment of principal of the loan for any year, the Railway Administration will deposit with the Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation in Shanghai or Tientsin any surplus revenue of the railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Banks from time to time with due regard to the conditions of the market.

22.—The Deutsch Asiatische Bank and the Syndicate may transfer or delegate all or any of their rights, powers, and discretions thereunder to any German or British Company, Directors or Agents with power of further transfer subject to the approval of the Director General.

23.—This Agreement is signed under authority of an Imperial Edict dated the tenth day of the Twelfth Moon of the 33rd year of Kuang Hsu, corresponding to the 13th day of January one thousand nine hundred and eight, Western Calendar, which has been officially communicated to the Ministers of Great Britain and Germany in Peking by the Wai Wu Pu.

24.—Five sets of this Agreement are executed in English and Chinese, three sets to be retained by the Imperial Chinese Government and two by the Syndicate. In any case of dispute the English text will be taken as correct.

Shanghai-Hangchow-Ningpo Loan Agreement.—This Agreement is made at Peking on the fourth day of the second month of the thirty-fourth year of Kuang Hsü, corresponding to the sixth day of March, 1908, and the contracting parties are:—

The Waiwupu (Board of Foreign Affairs) and

The Yuchuanpu (Board of Communications), acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation, Limited (hereinafter called "The Corporation") of the other part.

Article 1. The Imperial Government of China authorizes the Corporation to issue a five per cent. gold loan for the amount of £1,500.000 sterling. The loan shall be of the date on which it is issued to the public and shall be called "The Imperial Chinese Government five per cent. Shanghai-Hangchow-Ningpo Railway Loan."

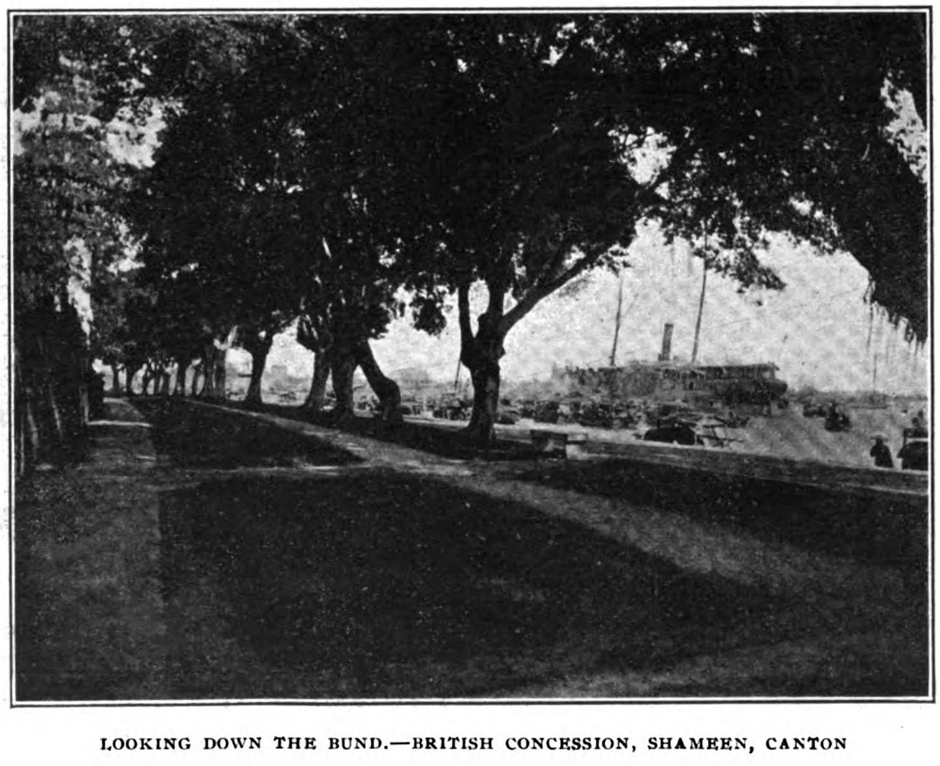
Article 2.—The loan is designed to provide capital for the construction of a railway line (hereinafter called "the railway") from a point connecting with the Shanghai-Nanking Railway at or near Shanghai in Kiangsu to the cities of Hangchow and Ningpo in Chekiang. The railway shall follow a line from Shanghai through Fengchingchen to Kahsingfu; and thence to Hushu and Hangchow; and thence from Chiangkan to Ningpo, on which line certain construction work has already been locally undertaken under authority of the Imperial Chinese Government.

The survey line shall be open to revision by the Yuchuanpu.

Article 3.—The Chinese Government guarantees that the capital so provided shall be solely devoted to the construction of the railway including the purchase of rolling stock and other equipment and to the working of the line during construction; it is understood, however, that the cost of the land required for the railway and the payment of interest on the Loan during construction are not to be met out of Loan funds but will be paid by the Imperial Chinese Government from other sources. It is understood that the railway will be completed within three years from the date of signature of this Agreement; and that within a period of six months from that date the Corporation shall notify the Yuchuanpu that the sum of £100,000 has been placed at their disposal, to be held in Europe or remitted to China as they may direct, as a first instalment on account of the proceeds of the Loan. This amount of £100,000, or whatever portion thereof is actually advanced, together with interest thereon not exceeding a charge of six per cent per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 4.—The rate of interest for the Loan shall be five per cent per annum on the nominal principal and shall be paid to the bond-holders half-yearly. The said interest shall be calculated from the date on which the Loan is issued to the public and shall be paid by the Imperial Chinese Government during the time of construction from Chinese sources, and afterwards, in the first place out of the revenues of the railway, and should these be insufficient then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Chinese Government may see fit to use for the purpose, in half-yearly instalments according to the amounts specified in the schedule attached to this Agreement and fourteen days before their due dates, Western Calendar as calculated half-yearly from the date on which the Loan is issued to the public.

Article 5.—The term of the Loan shall be thirty years. Repayment of principal shall commence after the expiry of ten years from the date of the Loan, and, except as provided in Article 6 hereinafter, shall be made by yearly amortisation to the Hongkong and Shanghai Banking Corporation in half-yearly instalments, out of the revenues of the railway, and should these be insufficient, then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Imperial Chinese Government may think fit to use for the purpose, according to the amounts specified in the schedule attached to this Agreement, and fourteen days before their due dates, Western Calendar, as calculated half-yearly from the date on which the Loan is issued to the public.



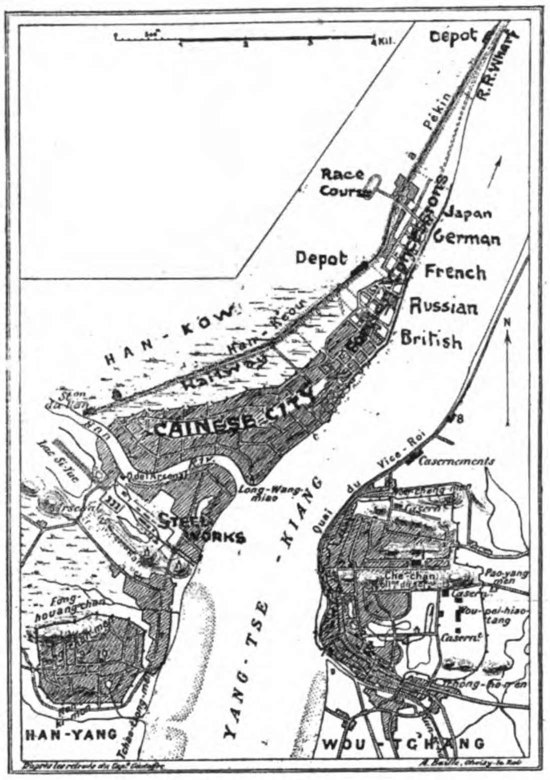
LOOKING DOWN THE BUND.—BRITISH CONCESSION, SHAMEEN, CANTON

Article 6.—If at any time after the lapse of ten years from the date of the Loan, the Imperial Chinese Government should desire to redeem the whole outstanding amount of the Loan, or any portion of it, not yet due for repayment in accordance with the schedule of repayments hereto attached, it may do so until the twentieth year by payment of a premium of 2½ per cent on the face value of the bonds (that is to say, by payment of £102.10|- for each £100 bond) and after the twentieth year, without premium; but in each and every case of such extra redemption the Imperial Chinese Government shall give six months' notice in writing to the Corporation, and such redemption shall be effected by additional drawings of bonds, to take place on the date of an ordinary drawing as provided for in the prospectus of the Loan.

Article 7.—The Hongkong and Shanghai Banking Corporation having been appointed by the British and Chinese Corporation, Limited, Agents for the service of the Loan, the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5 shall be made in accordance with the amounts of the schedule attached to this Agreement, and fourteen days before their due dates, as fixed by Articles 3 and 5, to the Hongkong and Shanghai Banking Corporation by the Yuchuanpu or its duly appointed representative, who shall hand to the said Bank in Shanghai, fourteen days before the said due dates, funds in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Bank; the Yuchuanpu, or its duly appointed representative, having, however, the option of settling exchange with the Bank at any date or dates within six months previous to any due date for the repayment of interest and principal. These payments may, however, be made in Gold if the Imperial Chinese Government should happen to have Gold funds "bona fide" at their disposal in Europe, not remitted from China for the purpose, and desire so to use them.

In reimbursement of expenses connected with the payment of interest and the repayment of principal of the Loan, the Hongkong and Shanghai Banking Corporation will receive a commission of one quarter per cent. on the annual Loan service.

Article 8.—The Imperial Government of China hereby engages that the interest and principal of this Loan shall duly be paid in full, and should the revenues of the Railway, together with the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), not be sufficient to provide for the due and full payment of interest and repayment of principal, the Yuchuanpu shall memorialize the Throne and the Imperial Government of China will thereupon make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the Bank at the date upon which funds are required to complete full payment of interest and repayment of principal.



MAP OF HANKOW, WUCHANG, AND HANYANG SHOWING LOCATION OF HANYANG IRON AND STEEL WORKS

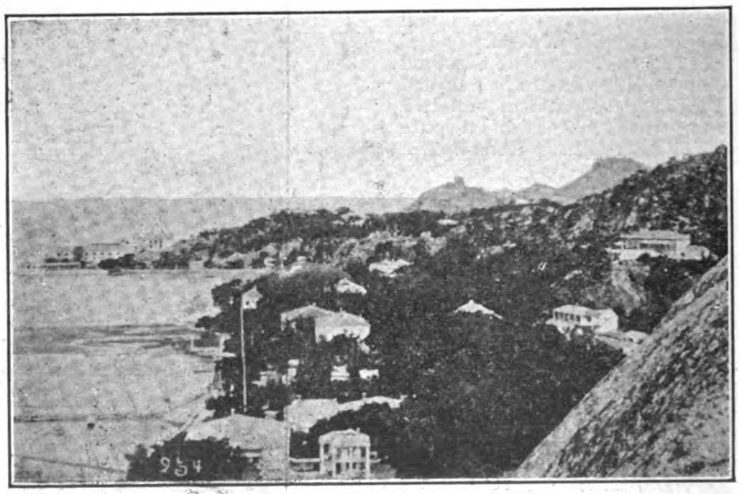
Article 9.—The Loan is hereby secured upon the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), that is to say, that after deducting from the net earnings of that railway the amounts required to meet the payments of interest and repayments of principal due in terms of the Agreement of October 10, 1898 (Kuang Hsü 24th year, 8th moon, 25th day) to the bondholders of the Imperial Chinese Government Loan of that year, then the payment of interest and repayment of principal of the present Loan shall be a first charge upon the said surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and no deductions or payments shall be made from the earnings of the said railway other than those required to meet the obligations stated in the Loan Agreement of October 10, 1898 (Kuang Hsü 24th year, 8th moon, 25th day) until an amount sufficient to pay the next half-yearly instalment of interest and principal of the present Loan shall have been placed on deposit with the Hongkong and Shanghai Banking Corporation as security for the due payment of the same.

Article 10.—The Corporation is hereby authorized to issue to subscribers to the Loan, bonds for the total amount of the Loan for such amounts as may appear advisable to the Corporation. The form of the bonds shall be settled by the Corporation in consultation with the Yuchuanpu or its duly authorized representative or with the Chinese Minister in London. The bonds shall be engraved in Chinese and English; they shall bear the facsimile of the signature of the Yuchuanpu's duly authorized representative and of his seal of office (in order to dispense with the necessity of his signing them all in person) but the Chinese Minister in London shall, previous to the issue of any bonds, put his seal upon each bond with a facsimile of his signature as a proof that the issue and sale of the bonds are duly authorized by, and binding upon, the Imperial Chinese Government, and the representative of the Corporation in London shall countersign the bonds as agents for the issue of the Loan.

If any of the bonds herein mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned, who shall defray all expenses connected with such reissue of bonds lost or destroyed and who under the said guarantee shall undertake to indemnify the Imperial Chinese Government and or the Corporation for any loss sustained by reason of the issue of bonds in the place of bonds lost or destroyed.

Article 11.—All bonds and coupons and payments made and received in connexion with the service of this Loan shall be exempt from all Chinese taxes and imposts during the currency of this Loan.

Article 12.—All details necessary for the prospectus and connected with the payment of the interest and repayment of the principal

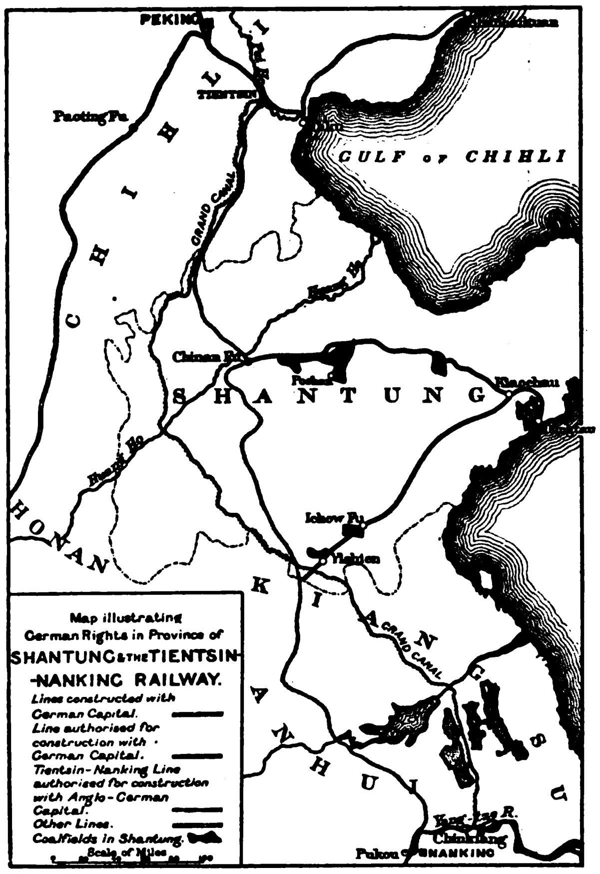


KAKCHIO, FOREIGN SETTLEMENT, SWATOW. VIEW FACING WEST-CHINA SUGAR REFINERY ON THE POINT

of this Loan not herein explicitly provided for shall be left to the arrangement of the Corporation in consultation with the Chinese Minister in London. The Corporation is hereby authorized to issue the prospectus of the Loan as soon as possible after the signing of this Agreement and the Imperial Government will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action and to sign the prospectus of the Loan.

by his certificates or those of the said Board stating the nature and cost of the work to be paid for.

Such amounts as may be required for expenditure in China may be transferred under the instructions of the Yuchuanpu, at their discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation, and the transferred funds shall remain on deposit with that Bank until required for railway purposes.



Article 13.—The Loan shall be issued to the public in one series of bonds, as soon as possible after signature of this Agreement and not later than twelve months from the date thereof. The price to the Imperial Chinese Government shall be 93% of the nominal value of the bonds. Subscriptions will be invited by the Corporation in England and in China both from Chinese and Europeans on equal conditions, preference being given to the application by the Chinese Government provided that such application be made before the issue of the prospectus to the public.

Article 14.—The proceeds of the Loan shall be paid to the credit of the Yuchuanpu with the Hongkong and Shanghai Banking Corporation in China or London as the case may be. Payments of the Loan proceeds into the credit of this account shall be made in instalments and on dates conforming to the conditions allowed to the subscribers to the Loan. Interest at the rate of four per cent per annum shall be granted on the credit balance of the portion of this account kept in London; and interest on the credit balance of the portion kept in China will be allowed at the Bank's rates for current account or fixed deposits, as the case may be, to be arranged.

The Bank will hold the net proceeds of the Loan with accrued interest to the order of the Yuchuanpu, or its duly authorized representative, who, in ordering payment of any sums exceeding £20,000 shall give notice to the Bank ten days before the day on which they are required. Requisitions on the Loan funds will be drawn in amounts to suit the progress of construction of the Railway by orders on the Hongkong and Shanghai Banking Corporation, signed by the Yuchuanpu or its duly authorized representative, and accompanied

The Yuchuanpu will cause to be published annually, upon the close of the Railway's financial year, a report in the Chinese and English languages showing the working accounts and traffic receipts of the Railway, which report shall be procurable by the public on application.

Article 15.—If, during the time of construction the net proceeds of the present Loan with accrued interest should not be sufficient to complete the construction and equipment of the Railway line, the amount of deficiency shall be provided in the first place from such Chinese funds as may be available so as to permit of the uninterrupted continuance of the work of construction, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Corporation. The interest and other conditions of such supplementary Loan will be the same as in the present agreement, and the price payable to the Imperial Chinese Government will be the actual rate of its issue to the public less flotation charges of 5½ points retainable by the Corporation, that is to say, £5. 10/- for every £100 bond issued.

If, after completion of the line, there should remain a balance of Loan funds at the credit of the Railway account, such unused balance shall be at the disposal of the Yuchuanpu to be used either for the purpose of paying interest on the Loan or for the equipment of the Railway, or for the construction and equipment of branch lines beneficial to the Railway.

Article 16.—If, before the publication of the prospectus for the issue of the Loan, any political or financial crisis should take place by which the market and the prices of existing Chinese Government stocks are so affected as to render in the opinion of the Corporation the successful issue of the Loan impossible on the terms herein named, the Corporation shall be granted further extension of time, but not beyond eighteen months from the date of this Agreement, for the performance of their contract. If, within this time limit the Loan shall not have been issued this contract shall become null and void, and any advances made by the Corporation under the provisions of Article 3 shall be repaid by the Chinese Government with accrued interest but without any other compensation or remuneration whatsoever.

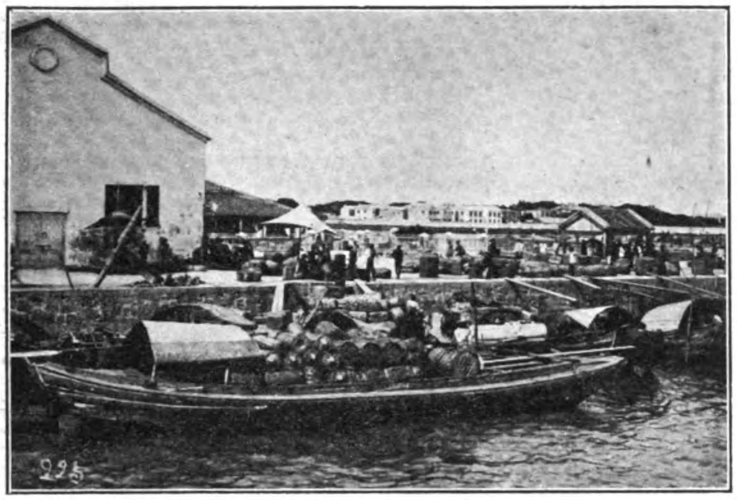
Article 17.—The construction and control of the Railway will be entirely vested in the Imperial Chinese Government. For the work of construction the Yuchuanpu, or its duly appointed Managing Director, will select and appoint a British Chief Engineer, who shall be a professional man of established reputation to be selected either in England or from the staff of one of the existing Chinese Government Railways. The Chief Engineer will be under the orders of the Managing Director, or, in his absence, of his duly authorized representative. In his general conduct he shall pay all due respect to the Managing Director. The terms of the Chief Engineer's agreement will be arranged by the Yuchuanpu or its duly appointed Managing Director.

Whenever appointments are to be made or functions are to be defined of the technical employees on the Railway staff, as well as in the case of their dismissal, the Managing Director, or in his absence, his duly appointed representative, will act in consultation with the Chief Engineer and, in the case of disagreement, the matter will be referred to the Yuchuanpu, whose decision shall be final. After completion of construction the Imperial Chinese Government will retain the services of an Engineer-in-Chief who during the period of the Loan shall be a British subject.

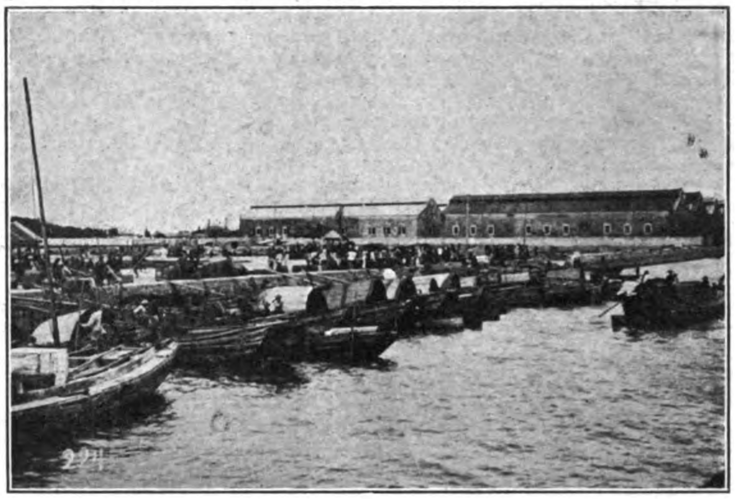
Article 18.—During the construction of the Railway the Corporation will act as its Agents for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials, tenders shall be called for by the Managing Director; in the case of all tenders, indents and orders for the importation of goods and materials required on the terms most advantageous to the Railway. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

As remuneration for its services as Agents of the Railway during construction, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed but not later than eighteen (18) months from the date of this agreement, and the other half upon completion of the line. This amount shall be regarded as commutation of all commissions to which the Corporation and its Agents would properly be entitled and of payments for all services rendered in the construction and equipment of the Railway in respect of the present Loan; but in the event of a further Loan being required under the provision of Article 15 hereinabove, then a further payment of commuted commission, proportionate to the amount of such supplementary Loan and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission the Corporation as Agents shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the Railway which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities goods of British manufacture shall be given preference over other goods of foreign origin. The Managing Director shall have the right, while paying the above stipulated commutation of commission to the said Agents, in respect of all purchases of foreign materials, to avail himself of the services of other Agents in China or abroad should he see fit to do so.



THE BUND AT SWATOW.—CUSTOMS WHARF



THE BUND AT SWATOW

Original invoices and inspectors' certificates are to be submitted to the Managing Director; all return commissions and rebates of every description shall be credited to the Railway; and all purchases made by the Agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

No commission shall be paid to the Agents except as above provided; but it is understood that the Yuchuanpu or its duly authorized representative shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are required for general assistance and advice or for the inspection abroad of materials requiring supervision of technical experts.

With a view to the encouragement of Chinese industries, preference shall be given at equal prices and qualities, over British and other foreign goods, to Chinese goods and materials manufactured in China. No commission will be paid on purchases of such materials and goods.

It is understood and agreed that after the construction of the line is completed, the Corporation will be given the preference for such Agency business during the currency of the Loan for the supply of foreign materials as may be required for the Railway, on terms to be hereafter mutually agreed upon.

Article 19.—Branch lines in connexion with the Railway mentioned in this Agreement, that may appear profitable or necessary later on, shall be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, and if foreign capital is required, preference will be given to the Corporation.

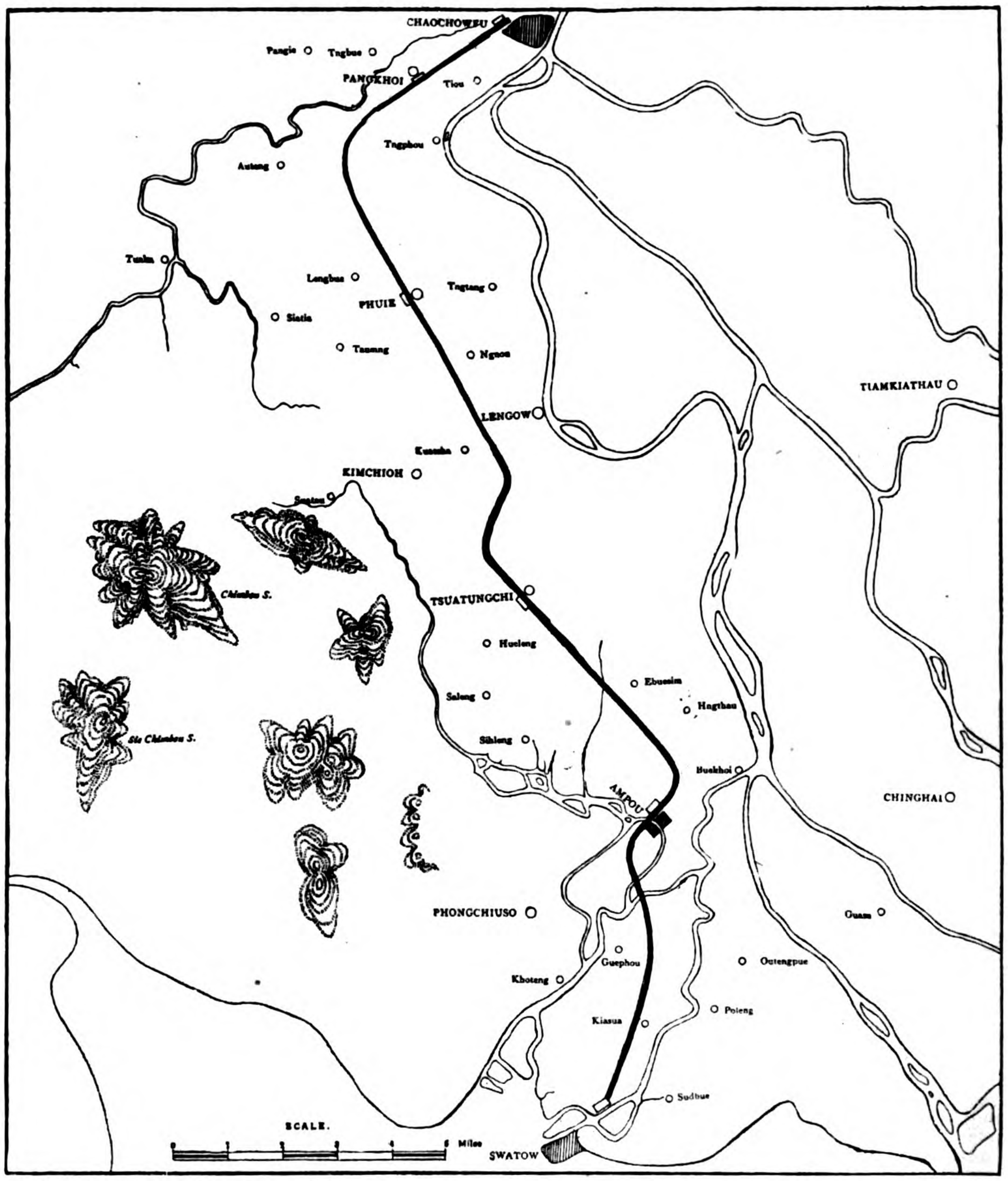
Article 20.—By the preliminary agreement dated October 15, 1898 (Kuang Hsü 24th Year, 9th Moon, 1st Day) participation of twenty per cent of the net profits of the Railway had been promised to the Corporation in remuneration for their general responsibility and services. In commutation of this participation in net profits, the Corporation is granted the right to retain £67,500 out of the proceeds of the Loan in instalments and on dates in proportion to, and based on, the terms of subscription to the Loan, as stated in the prospectus. No further payment in respect of commutation of profits will be allowed on any supplementary Loans.

Article 21.—After payment of interest and repayment of principal of the Loan for any current year, the Yuchuanpu shall deposit with the Hongkong and Shanghai Banking Corporation in Shanghai any surplus of the net revenue of the Railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Bank from time to time with due regard to the conditions of the market.

Article 22.—The Corporation may, subject to all its obligations under this Agreement, transfer or delegate all or any of its rights, powers or discretions thereunder to any British Company, Director or Agent, with power of further transfer and subdelegation, such transfer, subtransfer, delegation or subdelegation, to be subject to the approval of the Yuchuanpu.

Article 23.—This Agreement is signed under authority of an Imperial Decree of this date which has been officially communicated to the Minister of Great Britain in Peking by the Waiwupu.

Article 24.—Three sets of this agreement are executed in English and Chinese, two sets to be retained by the Imperial Chinese Government and one by the Corporation; in the event of any doubt arising regarding the interpreta-



Reprinted from the Far Eastern Review

MAP OF THE SWATOW-CHAOCHAOW-FU RAILWAY

His Excellency CHUNG MUN YEW
MANAGING DIRECTOR OF THE CHINA MERCHANTS STEAM NAVIGATION COMPANY AT SHANGHAI AND OF THE SHANGHAI-NANKING RAILWAY—A GRADUATE OF YALE UNIVERSITY AND FORMER SECRETARY OF LEGATION AT WASHINGTON AND CONSUL-GENERAL AT HAVANA AND MANILA. PROBABLY THE MOST POPULAR CHINESE DIPLOMAT AMONG AMERICANS

tion of the contract the English text shall rule.

Signed at Peking by the contracting parties this fourth day of the second month of the thirty-fourth year of the Emperor Kuang Hsü, being the sixth day of March nineteen hundred and eight.

Signed,

Hu Hui-te,
Liang Shing-yi,
Kao Erh-ch'ien.

[Seal of Waiwupu].

For the British and Chinese Corporation, Ltd.,

J. O. P. Bland,
Representative in China.

(*) Preliminary Agreement between the Hongkong and Shanghai Banking Corporation and Director-General Hu, respecting the Peking-Newchwang Railway Loan.

This is a preliminary Agreement made between his Excellency Hu, Governor of Peking and Administrator-General of the Imperial Railways of North China within and without the Great Wall, hereinafter called the Administrator-General, of the one part: and the Hong Kong and Shanghai Banking Corporation, representing a British Syndicate, hereinafter called the Syndicate, of the other part.

1.—The Syndicate is hereby authorized by the Administrator-General to make arrangements to float and issue, on behalf of the Railway Administration, on the best terms obtainable on the market, a sterling loan for the equivalent of about (16,000,000 taels), for the construction of railway line from Chung-hou-sou to Hsin Ming-tien, and a branch line to Yingtzu, and for the redemption of existing loans to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao lines.

2.—The security for the loan shall be the permanent way, rolling-stock, and entire property, together with the freight and earnings of the existing lines between Peking, Tientsin, Tangku, and Chung-hou-sou, and also of the proposed new lines when constructed, in addition to the rights of mining coal and iron, which will be retained by the Railway Administration on each side of the proposed new lines, for a distance to be determined. In the event of default or arrears in payment of interest or payments of principal, the said railway lines and mines shall be handed over to representatives deputed by the Syndicate, to manage them on their behalf, until principal and interest of the loan are redeemed in full, when the management will revert to the Railway Administration.

It will, however, be provided that if such arrears are for a small sum, and it appears desirable to the Syndicate to extend the due date of their payment for a term not exceeding three months, it shall be open to the syndicate to do so.

In the event of any special circumstances arising, necessitating the introduction of important changes by the management aforesaid, these changes shall be effected in consultation with the Administrator-General, and in the best interests of the railway. In the case of war or famine, troops and grain will be transported over the line on terms to be arranged hereafter.

No further loan, charge, or mortgage shall be charged on the security named above until this loan is redeemed.

3.—During the currency of the loan the principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railway, and may be, in the event of their misconduct or incompetency, dismissed, after consultation with the Chief Engineer. If there are Chinese, with sufficient engineering or traffic experience, they may be appointed as well as Europeans. Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Syndicate.

In addition to above, a capable and experienced European Railway Accountant shall be appointed to inspect all the accounts of the railways.

All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of repairing and maintaining lines will be paid from this account, the remainder of which shall then be charged with the service of this loan.

4.—The rate of interest, price, term of years, and other particulars shall be left to the Syndicate to arrange, on the best terms possible, on the market, when the moment appears favorable for floating the loan. Instalments of proceeds will be arranged as far as possible to suit the progress of construction and the requirements of the Administrator-General, interest being calculated from the date of such payments. The loan will be redeemable by annual drawings to be scheduled in the final agreement. Besides the drawings so scheduled the Administrator-General may from time to time, on giving due notification to the Syndicate, call for extra drawings to be held, bonds so drawn being redeemed by the Railway Administration at 20 per cent. premium on their par value.

5.—If it shall be found that the loan cannot be floated without the introduction of some special attraction, the Administrator-General shall memorialise the Throne, recommending that a concession of mining rights be granted to the Syndicate at a point or points on the lines, and on terms to be arranged with the Syndicate on the basis of the Mining Regulations newly established by the Tsung-li Yamen. The requests of the Syndicate will be confined to mines within a distance of 5 li of the railway.

6.—The date of issue of this loan shall be left to the discretion of the Syndicate, to be fixed in accordance with the state of the market, but should it be found impossible to issue it before the 1st day of October next, the Syndicate will arrange to advance to the Administrator-General, on or about that date, an instalment of about 2,000,000 taels on account of, and repayable out of the proceeds of the loan when floated. The terms of this advance shall be left to the arrangement of the Syndicate on the best terms obtainable, interest not to exceed the rate of 5½ per cent. per annum, and the Syndicate shall be authorized to issue temporary bonds for the amount if required.

7.—For the satisfaction of the investing public who are unacquainted with China a satisfactory report will be required from District Engineer, Mr. J. Ginnell, as to the condition and earning power of the old lines, and as to the route, prospects, and mineral wealth of the new lines to be constructed, and Mr. Ginnell shall be instructed by the Administrator-General to proceed to London as soon as possible after the signing of this preliminary Agreement, to confer with the Syndicate on these matters.

8.—The terms of this preliminary Agreement will, immediately after signature, be submitted by the Administrator-General to the Throne for sanction by Imperial Edict, which shall be officially communicated by the Tsung-li Yamen to the British Minister in Peking.

9.—Three months from the date of signature of this preliminary Agreement shall be allowed to the Syndicate to accept or decline its terms. Upon their confirmation by the Syndicate this preliminary Agreement shall be replaced by a definitive Agreement, providing for all details.

(*) Several of these agreements are reproduced from P. H. Kent's "Railway Enterprise in China."

Signed at Peking, this 7th day of June 1898, being the 19th day of the 4th moon of the 24th year of the Emperor Kuang Hsu.

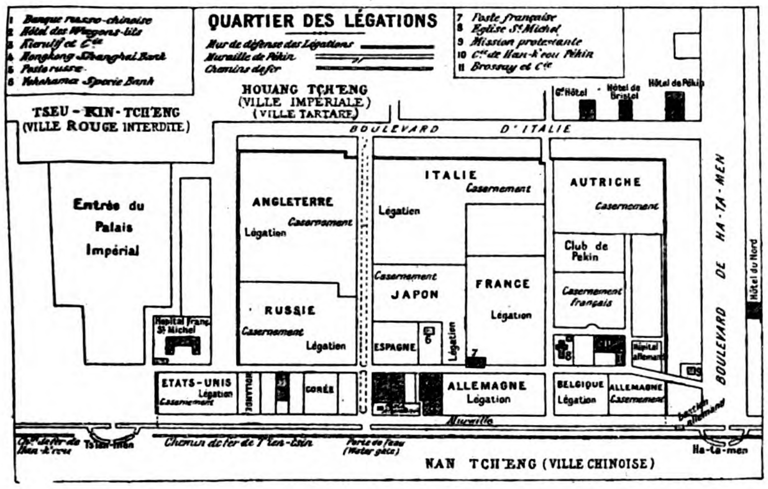
(Seal of Administrator-General of Railways within and without the Shan-hai-kuan boundary.

For the Hong Kong and Shanghai Banking Corporation,

(Signed) E. G. HILLIER, *Agent.*

ing-stock on the existing lines between Peking and Shan-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

(3).—To the construction of a railway line from Chung-hou-so to Hsin-ming-ting, and one from a point on that line near Shih-san-chan to Ying-tzu, and of a branch line from Nu-erh-ho to the collieries of Nanp'iao.



THE QUARTERS OF THE FOREIGN LEGATIONS IN PEKING

DEFINITIVE AGREEMENT BETWEEN THE BRITISH AND CHINESE CORPORATION (LIMITED) AND DIRECTOR-GENERAL HU RESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This agreement is made between His Excellency Hu, Governor of Peking, as Administrator-General of the Railways of North China within and without Shan-hai-kuan, acting under the authority of the Imperial Chinese Government, hereinafter called the "Administrator-General," of the one part, and the Hong Kong and Shanghai Banking Corporation, for themselves and on behalf of the British firm of Jardine, Matheson & Co., representing as joint agents the British and Chinese Corporation (Limited), hereinafter called the "Corporation" of the other part:

Whereas, on the 7th day of June 1898, being the 19th day of the 4th month of the 24th year of the Emperor Kuang Hsu, a preliminary Agreement was signed at Peking between the Administrator-General and the Hong-Kong and Shanghai Banking Corporation, representing a British Syndicate, for a sterling loan for the equivalent of about 16,000,000 taels, for the construction of a railway line from Chung-hou-sou to Hsin-ming-ting and a branch line to Ying-tzu, and for the redemption of existing loans made to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao Railway lines: and

Whereas in terms of the preliminary Agreement a period of three months from its date was allowed to the Syndicate to accept or decline its conditions: and

Whereas the Hong Kong and Shanghai Banking Corporation, before the expiration of the period named, duly notified the Administrator-General that it is prepared, with certain modifications, to arrange the issue of the loan upon the conditions named in the preliminary Agreement:

1.—The Corporation agrees to issue on behalf of the Administrator-General a sterling loan for the amount of £2,300,000, the proceeds of which are to be applied in the order following:—

(1).—To the redemption forthwith or at maturity of the loans and advances specified in the statement attached to this Agreement which have been made by foreign banks to the Tientsin-Shan-hai-kuan and the Tientsin-Lu-kou-chiao Railway lines. The Administrator-General hereby certifies that the total amount of the liabilities due by the lines named does not exceed the sum of 3,000,000 taels.

(2).—To the carrying out, within a period of three years from the date of this Agreement, of certain improvements and additions to rolling-stock on the existing lines between Peking and Shan-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

The Administrator-General engages that the construction of the new lines here specified shall be completed within a period of three years from the date of this Agreement.

2.—In the event of the proceeds of this loan being insufficient for the completion of the new lines here specified, the Administrator-General will provide or will arrange with the Imperial Government of China to provide funds from other sources sufficient to complete their construction.

3.—This loan shall be a first charge upon the security of the permanent way, rolling-stock, and entire property, with the freight and earnings of the existing lines between Peking and Shan-hai-kuan, and on the freights and earnings of the new lines when constructed. The Administrator-General shall, during the continuance of this loan, maintain the railway buildings, works, rolling-stock, and dependencies in good order and condition, and shall increase the rolling-stock from time to time to such extent as shall be necessary for the requirements of the traffic.

Should it be decided hereafter to construct branch lines or extensions connecting with the lines herein named, their construction shall be undertaken by the Railway Administration, and should the funds of the Railway Administration be insufficient for that purpose, it shall apply to the Corporation for the same.

4.—The principal and interest of this loan are guaranteed by the Imperial Government of China, and in the event of default in payment of interest or repayment of principal at due date, the Corporation shall immediately notify the Imperial Government of China thereof, and the Imperial Government of China will thereupon provide the funds necessary to meet such payment in sterling in London. In the event of the Imperial Government of China being unable to provide the funds necessary to meeting a payment of interest or principal when called upon by the Corporation to do so, in terms of this clause, the said railway lines and entire property shall thereupon be handed over to representatives deputed by the Corporation to manage, on their behalf, until principal and interest of the loan have been redeemed in full, when the management will revert to the Railway Administration. It is provided that should arrears of interest or principal be for a small sum, and it appear desirable to the Corporation to extend the due date of their payment for a term not exceeding three months, it shall be open to the Corporation to do so.

This arrangement, which differs from other contracts in that the Administrator-General retains control of the railway lines so long as the principal and interest of this loan are regularly paid, has been agreed to in consequence of the friendly relations which have long existed between the Contracting Parties.

5.—No further loan shall be charged upon the security named above, except through the Corporation, until the loan is redeemed; and the Tsung-li Yamen will hand to the British Minister in Peking a written undertaking on behalf of the Imperial Government of China, that the railway lines named in this Agreement shall never be alienated or parted with.

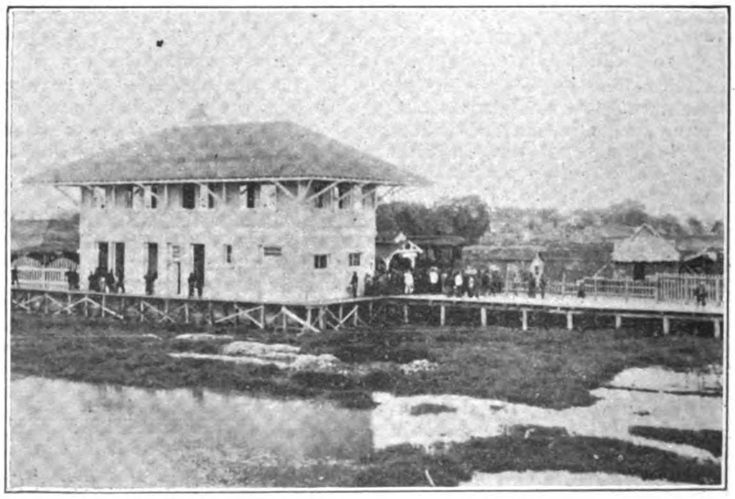
6.—During the currency of this loan the Chief Engineer of the railways shall be a British subject. The principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railways, and may be, in the event of their misconduct or incompetency, dismissed after consultation with the Chief Engineer.

If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans.

Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Corporation.

In addition to the above, a capable and efficient European Railway Accountant shall be appointed, with full powers to organize and direct the keeping of the railway accounts, and to act with the Administrator-General and the Chief Engineer of the railway in the supervision of receipts and expenditure.

7.—The railway lines named in the Agreement being Imperial Government lines, in the event of war or famine, Chinese Government troops and grain may be transported over the lines free.



REAR VIEW OF FATSHAN STATION ON THE CANTON-HANKOW RY.

8.—All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually, payable under the Board of Revenue's arrangement approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

MAP ILLUSTRATING FRENCH RAILWAY RIGHTS IN SOUTH CHINA

All expenses of working and maintaining the lines will be paid from their receipts and earnings, the remainder of which, together with the provincial funds above named, shall then be charged with the service of this loan. Payments of interest and repayments of principal shall be made in equal monthly instalments, and in accordance with the amounts and dates of a yearly schedule which will be furnished to the Administrator-General by the bank. These payments shall be made by the Administrator-General to the Hong Kong and Shanghai Banking Corporation, Tientsin, in Hongping sycee sufficient to provide the sterling amount due to the bondholders in terms of the prospectus of the loan, the rate of exchange for these payments being fixed by that bank as each such payment becomes due. In reimbursement of expenses incurred in connection with the distribution of the service to the bondholders of the principal and interest of the loan, the Hong-Kong and Shanghai Banking Corporation, Tientsin, shall receive from the Railway Administration a commission of ¼ per cent. on the annual loan service, which will be included in the yearly schedule for the same.

9.—The term of the loan shall be forty-five years, and, subject to the modification mentioned hereinafter, repayment of principal shall be made, so far as regards the bondholders, in forty equal annual instalments, commencing with the sixth year.

10.—Interest on the loan shall be charged at the rate of 5 per cent. per annum on the nominal principal, and shall be calculated on the balance of such principal at any time outstanding, payments of interests being made by the Administrator-General in accordance with the amounts and dates specified in the yearly Schedule to be provided.

11.—The loan will be redeemed by annual drawings in London as provided for in the prospectus. Besides the drawings as provided for, the Administrator-General may, on giving three months' notice to the Corporation, call for extra drawings to be held for any amount. Bonds so drawn to be redeemed by the Railway Administration at 20 per cent. premium on their par value. Any such extra drawings must take place on the date of the ordinary drawing provided by the prospectus.

In the event of such extra drawings taking place, subsequent payments of interest will be adjusted in the Yearly Schedule to be provided, but the repayments of principal shall continue unaltered in terms of clause 9 of this Agreement until the loan is redeemed.

The Imperial Government of China hereby engages that this loan shall not be redeemed or converted otherwise than as herein provided.

12.—The price agreed upon for this loan is 90 per cent. net of the nominal principal, but should an unfavorable state of the market prevail at the time of issuing the prospectus the Corporation is hereby authorized to reduce the price of the loan, at its own discretion, to not less than 88 per cent. net to the Railway Administration.

13.—The Corporation are hereby authorized to issue to subscribers to the loan bonds for the total amount of the loan in pounds sterling, in such form and for such amounts as shall appear desirable to the Corporation, and the Minister for China in London will seal all such bonds with his official seal, as evidence that the Imperial Government of China is bound thereby. Each such bond shall bear the following clause:—

"The Imperial Government of China, pursuant to an Imperial Edict, dated_____________, unconditionally guarantees and declares itself responsible for the payment of the principal moneys and interest hereby secured, and in faith thereof it has specially authorized the Chinese Minister in London to seal this bond with his official seal."

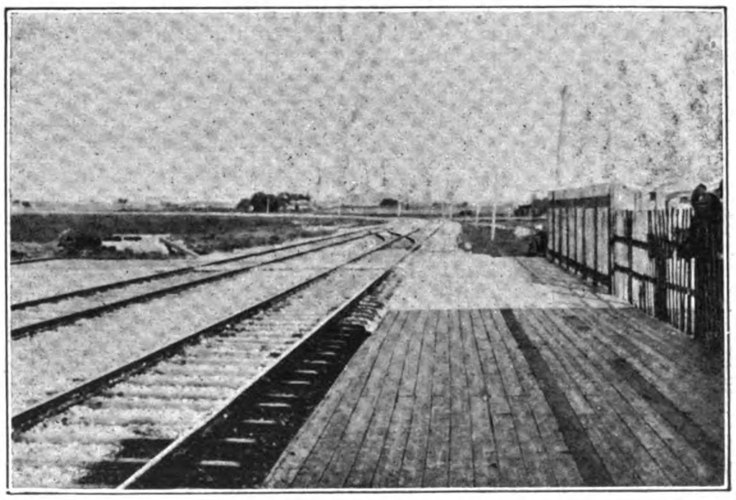
14.—All bonds and coupons and payments made and received in connection with this loan shall be exempt from Chinese taxes and imposts for ever.

15.—All details necessary for the prospectus and connected with the service to the bondholders of the interest and repayment of principal of this loan, not herein explicitly provided for, shall be left to the arrangement of the Corporation, who are hereby authorized to issue a prospectus of the loan as soon as possible after the signing of this Agreement.

The Tsung-li Yamen will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action.

16.—The loan shall be issued to the public as soon as possible after the signing of this Agreement, and shall date from the first day of the month of its issue. Payment of the entire proceeds will be made in London to the order of the Administrator-General not later than the 31st day of March 1899: of the above proceeds the Corporation will advance to the order of the Administrator-General in London, on or before the 31st day of October next, the sum of £250,000; this advance will bear interest at the rate of 5½ per cent. per annum until such time as the first instalment of the loan proceeds shall be available, when it shall be deducted from those proceeds by the Corporation.

17.—In the event of an unfavorable state of the market rendering the issue of this loan, and the payment of its proceeds to the Railway Administration impossible on the terms named without loss to the Corporation, the Corporation shall be granted such extension of time for the performance of its contract with the Administrator-General as the circumstances demand, any advances or instalments of proceeds already made to the Railway Administration being in that case treated as regards payment of interest, repayment of principal, security, and Imperial Chinese Government guarantee in terms of this present Agreement, and as forming part of the principal amount of this loan. Similar extension of time for the issue of this loan and payment of its proceeds shall also be granted in the event of the Deutsche-Asiatische Bank, Berlin, objecting to its issue



VIEW OF TRACKS ON CANTON-HANKOW RY. FROM FATSHAN STATION

before the month of April next, in accordance with the terms of clause 9 of the Agreement for the Chinese Imperial Government 4½ per cent. Sterling Loan of 1898.

18.—Immediately after the signature of this Agreement, and before the issue of the prospectus of the loan to the public, the Administrator-General will memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement, the Imperial Edict so received being then communicated officially and without delay by the Tsung-li Yamen to the British Minister in Peking.

19.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights and discretions to any British Company, Directors, or Agents, in consultation with the Administrator-General, with or without power of further transfer and sub-delegation.

20.—This Agreement is executed in Quadruplicate in English and Chinese, one copy to be retained by the Administrator-General, one by the Tsung-li Yamen, one by the British Minister in Peking, and one by the Corporation. Should any doubt arise as to the interpretation of the contract, the English text shall be accepted as the standard.

Signed at Peking by the Contracting Parties this 25th day of the eighth month of the twenty-fourth year of the Emperor Kuang-Hsu, being the 10th day of October 1898, Western Calendar.

Agreement between the Chinese Government and the Russo-Chinese Bank for the Construction and Management of the Chinese Eastern Railway.

Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. Agreement signed 8th September 1896.

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns on the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, *i. e.*, 5 Russian feet, equivalent to 42½ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payment to the proprietors at market rates, either in one payment or as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation'

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorising them to proceed. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans, and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of ⅓ of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i. e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or likin barriers. But if transit duty be not paid they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profit made by the line shall belong to the Company solely. Any loss must likewise be borne by it; the Chinese Government cannot be responsible. After eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced the Company will pay the Chinese Government five million Treasury taels.

The Hsinminting-Mukden and Kirin-Kwangchengtze Railways.

Convention between Japan and China.

Consuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan, and Na T'ung, Ch'u Hungchi and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective Governments, have agreed upon the following articles:—

1.—The Chinese Government being desirous of purchasing the Hsinminting-Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese gold yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2.—The Chinese Government being about to construct a railway line herself from Kirin to Kwangchengtze, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3.—The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the Loan Contract of the railways inside and outside Shan-hai-kuan. The most important conditions are mentioned below. The regulations for the management of the railway line shall correspond with the methods at present employed by the General Office of the railway lines inside and outside Shan-hai-kuan.

(*a*) The periods within which the loans shall be repaid shall be for that of the Hsinminting-Mukden line east of the Liao River, eighteen years, and for the Kirin-Kwangchengtze line twenty-five years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(*b*) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsinmin-Mukden line east of the Liao River shall be the real property of the aforesaid section and its earnings.

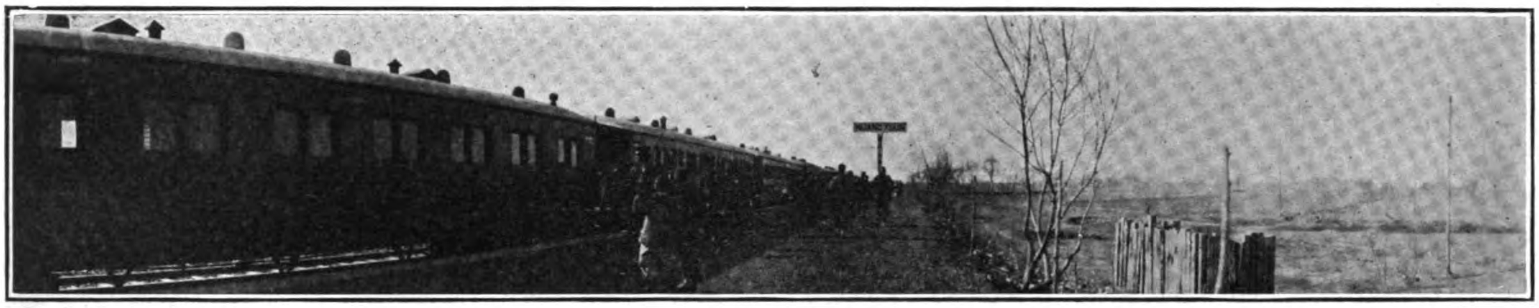
The security for the mercantile shares to be issued by the Kirin-Kwangchengtze Railway Administration, as well as for the loan to be made from the Southern Manchurian Railway Company, shall be the real property of the said railway and its earnings.

So long as these loans are not repaid by the Chinese Government the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock and road bed of the section of the Hsinmin-Mukden Railway east of the Liao River, and of the Kirin-Kwangchengtze Railway, shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be regarded to satisfy the demands of the traffic.

If the Kirin-Kwangchengtze line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but if there should be a lack of capital, application shall be made to the Southern Manchurian Railway Company for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(*c*) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the



IMPERIAL CHINESE RAILWAY.—HWANG TZUN STATION

shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it will be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be granted as an accommodation, but never for more than three months.

(*d*) During the periods of these loans the Engineer in Chief employed shall be a Japanese, and should there be an insufficient supply of Chinese for the various posts in the service of the railways, Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer in Chief, consultation must first be had with the (Southern Manchurian Railway) Company before appointment may be made. There shall also be appointed one Japanese Accountant, who must be thoroughly qualified, and who shall have entire responsiblity for the arrangement and oversight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director-General.

(*e*) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either line free of charge whenever military affairs or measures of relief shall require.

(*f*) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4.—The Chinese Government, immediately after the purchase of the present Hsinmin-Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Kwangchengtze line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Company for the loan.

5.—The lines fromHsinmin to Mukden, and from Kirin to Kwangchengtze, under the management of China, must connect with the Southern Manchurian Railway line. The Tientsin-Shan-hai-kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6.—The rate at which the loans specified in Articles 1 and 2 shall be issued, shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7.—Within one month after the payment of the purchase price of the Hsinmin-Mukden Railway the Chinese Railway Administration shall appoint officers to take control of the sums.

Japanese Calendar, Meiji XL Year, fourth Month, 15 Day.

Chinese Calendar, Kuanghsu XXXIII Year, Third Moon, 3 Day. (April 15, 1907).

Agreement for the Construction of a Railway from Taokow to Chinghua, in the Province of Honan, made between H. E. Sheng Hsuan-Huai, Director-General of Railways, being thereto specially authorized by the Chinese Government, and George Jamieson, Esq., C. M. G., Agent-General of the Pekin Syndicate Limited, also being fully authorized by the said Syndicate.

1.—On the 21st May 1898 (Kwanghsu 24th year 4th Moon 2nd day) the Shansi Bureau of Trade signed an Agreement with the Pekin Syndicate for working coal and iron in the five following places, namely, Yu Hsien, Pingting Chow, Luanfu, Tsechowfu, and Pingyangfu in the province of Shansi, and on the 21st June 1898 (Kwanghsu 24th year 5th Moon 3rd day) the Yu-Feng Company signed a mining Agreement with said Syndicate for mining in Honan in the neighborhood of Huai Ching and north of the Yellow River. These Agreements were both ratified by the Tsungli Yamen, in pursuance of an Imperial Decree dated 17th May 1898 (Kwanghsu 24th year intercalary 3rd Moon 27th day). In Article 17 of said Agreements it was stated that the Pekin Syndicate, on notifying the Governor of the province, should be permitted to build a railway to connect the mines with a main line or with water navigation. In June 1902 the Pekin Syndicate began to open coal mines in Sui Wu Hsien of Honan province, and at the same time gave notice to the Governor and obtained permission to build a railway from the said mines to Taokow, a port on the Wei River.

The British Minister has now applied that the said railway be put under the General Administration of the Imperial Chinese Railway Company, and the matter having been arranged in consultation with the Wai Wu Pu, this Agreement has been discussed and settled between the Director-General of the said Imperial Chinese Railway Administration and the said Syndicate.

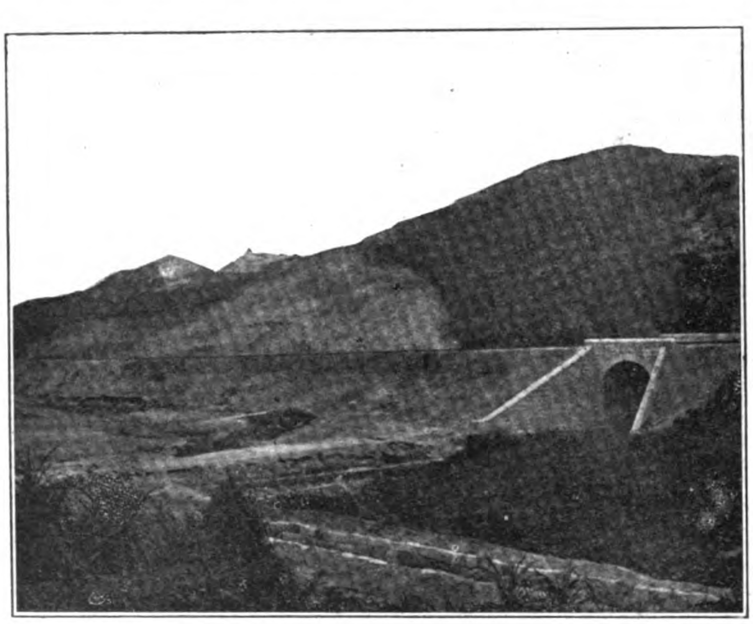
The line from Taokow to Tsechow is divided into two sections, the first from Taokow to the neighborhood of Chinghua Chen, a distance of 90½ miles; the second section is from Chinghua Chen to the neighborhood of Tsechow in Shansi, a distance of 38 miles more or less.

The construction of the first section has been undertaken by the Pekin Syndicate, and is now approaching completion. The present Agreement deals specially with the first section from Taokow to Chinghua Chen. As regards the second section, it is agreed that hereafter, when the Pekin Syndicate has fixed a date for opening mines in the neighborhood of Tsechow, a supplementary Agreement will be drawn up between the Director-General and the Pekin Syndicate to provide funds for construction, etc., of this section on terms in conformity with those of the present Agreement for the Taokow to Chinghua line, and on the basis of the Russian Cheng-Tai Railway Agreement, said terms to be settled at their discretion.

The cost of construction of the line from Taokow to Chinghua Chen, including rolling-stock and monies expended by the Syndicate as estimated by the Chinese Engineer after verification of the proper accounts, is £614,600. But in order to provide a liberal sum to meet the expenses of working the line until it is fully developed, and the interest on the loan, the Director-General has fixed the amount of the loan at £700,000, in 7000 bonds of £100 each. This loan is to bear interest at 5 per cent. per annum, and to be called the Chinese Imperial Government Honan Railway 5 per cent. (gold) loan of 1905.

2.—Out of the above amount of £700,000 there will be issued to the Syndicate 6829 bonds of £100 each, which the Syndicate takes firm at the price of 90 per cent. of face value, equivalent to £614,600 cash, in order to refund the above amount of capital. This will be done on the day when the line is handed over to China, and interest on the bonds will accrue from date of issue.

At the same time the Syndicate will make up and present an account with vouchers of all initial expenditure not already included in



1917-EMBANKMENT APPROACHING KOWLOON END OF THE TUNNEL

construction account, and of the sums provided by them from time to time for the ordinary working of the line from the date of opening to traffic to the time of handing over, and request the General Administration to examine and settle it. Any loss on working account after deducting earnings will be borne half and half by each. To the amount so found due will be added interest on capital from January 1st, 1905, to the date of handing over, and the total of these two items will be refunded to the Syndicate by the former issue of bonds out of the 171 surplus bonds in hand for the required amount reckoned at 90 per cent. of face value. If any bonds still remain over they will be retained by the Imperial Chinese Railway Administration for future use. If after the line is taken over the earnings of the line are insufficient to meet the payment for interest and refund of capital at due date a further loan may be obtained from the Syndicate. These bonds shall be signed in the name of the Chinese Government by the Chinese Minister in London.

The interest coupons will be paid at their face value in gold in London on the 1st of July and 1st January of each year. Coupons falling due and paid will be collected in numerical order by the Syndicate at its cost and handed over to the Chinese Minister in London.

3.—The loan shall be redeemed in twenty years dating from the tenth year of issue by annual drawings, which shall be held in London at the office of the Pekin Syndicate, in conformity with the schedule hereto annexed.

The drawings will be held on the 2nd Tuesday of January of each year. The first of such drawings shall be held in the year 1916. The number of drawn bonds at each drawing will be published in four daily newspapers at the cost of the Syndicate.

4.—Drawn bonds shall be paid in gold at their face value at date when the next interest falls due. Bonds presented for payment must be surrendered along with all the interest coupons not yet due. In case of shortage the sum of the missing coupons shall be deducted from the capital repayable. Interest on the bonds will cease on the date when the latter are repayable. Repaid bonds will be collected by the Pekin Syndicate at its cost, and handed over to the Chinese Minister in London.

5.—The Chinese Government shall not be at liberty before the year 1916 to augment the amount of the annual instalments for redemption, nor to repay the whole amount of the loan, nor to convert the loan. After this date the Chinese Government shall be at liberty at any time to repay the whole amount of the loan, provided, however, that until the expiry of the Syndicate's mining concessions the rates then in force for the conveyance of minerals shall not be arbitrarily increased to the detriment of the Syndicate's business. On the other hand, the Syndicate, after having settled an equitable tariff with the General Administration, based on the practice on other lines, shall not make pretexts to lower the rates to the detriment of the fund available for payment of principal and interest.

6.—Interest coupons and drawn bonds shall be repayable in gold in London at the office of the Pekin Syndicate, or of such bank as the Syndicate may appoint for that purpose.

7.—Payment of interest and repayment of the bonds forming this loan are guaranteed upon the general revenue of the Chinese Government. Further, by consent of the Chinese Government, the Imperial Chinese Railway Administration hereby declares that the net earnings of the said section of railway, after payment of the ordinary working expenses, are specially reserved for payment of interest and repayment of the said bonds, as is set out in the Working Agreement made between the said Imperial Chinese Railway Administration and the Pekin Syndicate, and which working Agreement is to be taken as one with this Contract. This reserve is exclusively for the purposes above set forth, and is not divertible until the final extinction of the bonds of this loan.

8.—The Imperial Chinese Railway Administration, after having taken note of the net receipts, authorises the Pekin Syndicate to convert the amount into gold, which shall be done on the most favorable terms in the interest of the Chinese Government and the Imperial Chinese Railway Administration, in order to assure the service of the loan at the next half-yearly period of payment. The remittances to the head office of the Pekin Syndicate in London shall continue until the sum necessary for the whole service of the loan at the next half-yearly payment has been realised in gold, and so that the service of the loan is assured three months at least before the half-yearly payment falls due.

The bank in which such sums are deposited will allow the best interest obtainable, for the benefit of the Imperial Chinese Railway Administration. The account in which said sums stand will be debited twenty days in advance with all the payments falling due at any half-yearly period, as provided for in this Contract, whether for interest, repayment of capital, cost of transport or commission.

9.—In order to assure more fully the guarantee now given for the loan, the Imperial Chinese Railway Administration creates in favor of the bonds a first mortgage over the said section of railway line, its permanent way, rolling-stock, and earnings. This special hypothecation is made to and accepted by the Pekin Syndicate for the benefit of the bondholders.

In case the Imperial Chinese Railway Administration shall fail to carry out the engagements entered into by this Contract the Pekin Syndicate can exercise, in respect to the said railway and property, all the rights and powers which they are entitled to exercise resulting from this special hypothecation.

10.—The foregoing stipulations do not militate against the responsibility of the Chinese Government in regard to this loan as specified in Article 7. The Chinese Government will devise means to provide the amount in gold necessary to supply the deficiency in case the sums accruing from the net earnings of the said section of railway, and paid over by the Chinese Railway Administration, are insufficient, after conversion into gold, to provide at least three months ahead for the payment falling due at the next half-yearly period.

In such case the Chinese Government will on demand place at the disposal of the Pekin Syndicate, fourteen days in advance of the due date, either in gold or value in some other form sufficient to produce in gold, the sum which the Syndicate may have notified as being necessary to meet the service of the loan.

11.—From the monies thus received from the Imperial Chinese Railway Administration, or from the monies paid over by the Chinese Government, the Pekin Syndicate shall duly set aside beforehand the sums necessary for the next service of the loan on the basis of the requirements of the last preceding half-year.

12.—The Chinese Government will pay to the Pekin Syndicate, or to the bank charged with the service of the loan, a commission of one-fourth of 1 per cent. on the amount of interest coupons paid,—that is, £25 on each £10,000, and the like commission on all bonds drawn for payment or repaid in anticipation of the due date. The amount of this commission will be taken from surplus earnings of the railway, if there are any, and in case these are insufficient it will then be paid by the Chinese Government.

13.—The Chinese Government binds itself to respect and cause to be respected the privileges attaching to the bonds as stipulated for in the present convention, and to maintain the bonds themselves, the interest coupons and operations incident to the service of the loan, free from every tax and impost of whatsoever nature.

14.—Coupons not presented for payment within five years from the date when they fall due will be forfeited for the benefit of the Chinese Government. In case of drawn bonds the term within which payment may be claimed is thirty years. In the case of a deceased bondholder the right will pass to his heirs, executors, etc., in conformity with the law of his own nationality.

Payment of the coupons and repayment of bonds will be made whether in time of war or peace, and irrespective of whether the holder belongs to a hostile or friendly State.

If bonds are lost, stolen, or destroyed the Chinese Government, upon satisfactory proof of the facts of the loss and the title of the claimant, will authorise the Pekin Syndicate to issue fresh bonds to replace those lost, at the expense of the Syndicate.

15.—The Chinese Government, through its Representative in London, will take the necessary steps and furnish the necessary documents so as to enable the bonds to be officially quoted on the London Stock Exchange.

16.—The price of all land taken up for the railway having been included in the loan, the Syndicate will in the first place hand over the title-deeds to the Imperial Chinese Railway Administration, so that a list may be made which, after being stamped by the Magistrates of the several districts concerned, will be retained for record. The Railway Administration will then return the deeds to the Syndicate for custody, having first impressed on each a stamp indicating that they are not to be sold, pledged, or mortgaged. When the term has expired, or when the loan is fully repaid, the Syndicate will thereupon hand over to the Railway Administration all the original title-deeds, to be held by them as owners of the property. During the continuance of the term the Syndicate shall not assign the deeds to others, whether by way of sale, mortgage, or pledge.

17.—This Agreement and the rights under it being made with the Pekin Syndicate, which is of British nationality, the said Syndicate, besides conforming as hereby required with the several articles of the Agreement, shall not either openly or secretly alienate the said rights to persons of another nationality, and shall not substitute persons of another nationality in the management of the railway affairs. A breach of this stipulation will entitle the Imperial Chinese Railway Administration to take the management out of the hands of the Syndicate, and entrust it to another company, and in that case the Syndicate shall have no claim for compensation.

The foregoing places no restriction on the holding of shares in the Pekin Syndicate by persons of another nationality, nor on the holding of bonds of this loan, both of which may be freely bought and sold on the market at the convenience of the holders.

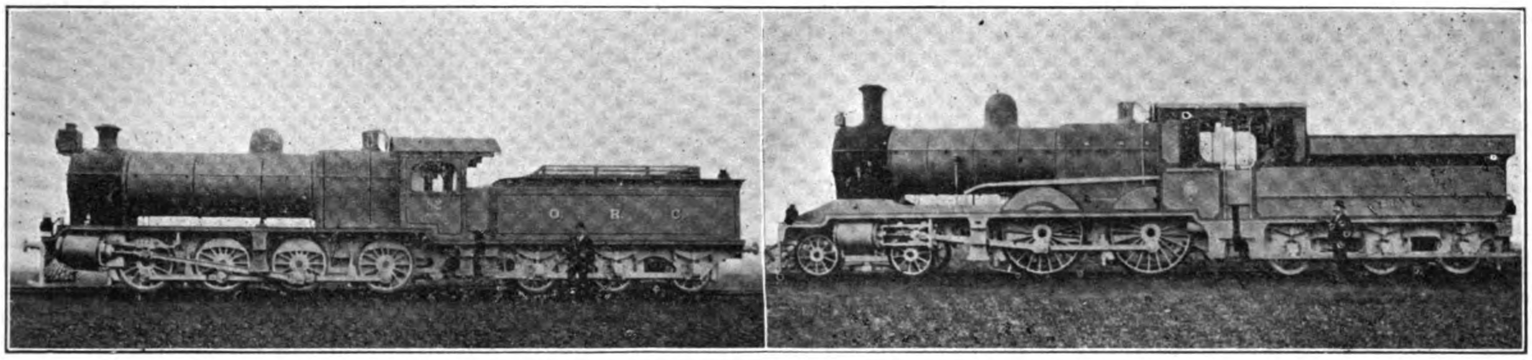
18.—In the accounts of this section there has been included an item for preliminary survey expenses, as also the cost of partial surveys of the second section which have already been made by the Syndicate, the result of which will be submitted to the Director-General.

19.—All plant and materials necessary for the repair and working of the line will be purchased by the Syndicate as agents, but in placing such order the Syndicate will do their best to get the most favorable terms. A list of articles required shall be submitted to the Director-General for approval before the order is given.

It is understood that articles which China herself can manufacture, if quality and price are the same, are not to be ordered from abroad. The workshops and mines controlled by the Director-General Sheng ought more especially to have the preference in supply of such articles, provided that in quality and price the articles are equivalent to what can be imported from abroad. By price is meant the cost in the foreign country plus freight and insurance. All materials imported from abroad shall be exempt from customs duty, and from likin in transit to the interior.

20.—In case of difference of opinion arising between the Pekin Syndicate and the Chinese Government, or the Imperial Chinese Railway Administration, the matter in dispute shall be discussed and settled between a member of the Wai Wu Pu and the British Minister. If these cannot agree the Wai Wu Pu and the British Minister will appoint an Arbitrator, whose decision will be final.

21.—This Agreement is executed in duplicate, one copy to be kept by the Imperial Chinese Railway Administration and the other by the Peking Syndicate. In case of doubt or ambiguity of meaning between the tw



LOCOMOTIVES IN USE ON THE SHANGHAI-NANKING R.R. BUILT BY MESSRS. ROBERT STEPHENSON & CO., LTD., OF DARLINGTON

texts, the English version shall be deemed the standard. This Contract shall be submitted to the Throne by the proper authority, who will request ratification. After ratification the Wai Wu Pu will officially communicate the fact to the British Minister at Peking for record, and so that the Syndicate may conform to the articles hereby agreed upon.

All the above must be done within one month from date of signature.

Signed and sealed at Peking the 3rd July 1905.

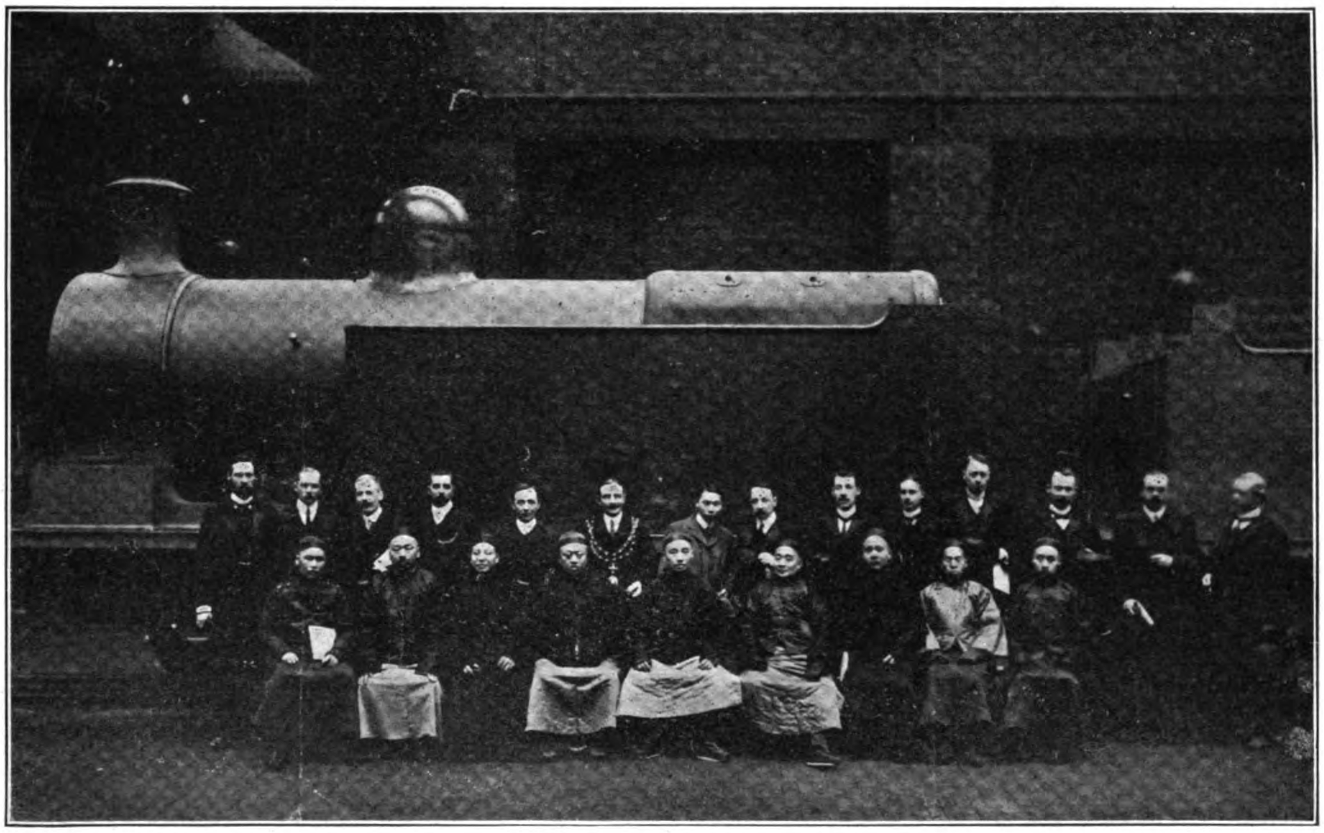
Signature and Seal of

SHENG HSUAN-HUAI,

Director-General of Railways.

(Signed) G. JAMIESON,

Agent-General, Pekin Syndicate Ltd.



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VISIT OF THE CHINESE COMMISSIONER TO MESSRS. ROBERT STEPHENSON'S LOCOMOTIVE WORKS AT DARLINGTON.

WORKING AGREEMENT MADE BETWEEN HIS EXCELLENCY SHENG, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND G. JAMIESON, C. M. G, AGENT-GENERAL OF THE PEKIN SYNDICATE LIMITED.

1.—The Imperial Chinese Railway Administration, under the authority of the Imperial Government, authorises the Pekin Syndicate, which will appoint a General Manager for the purpose, to manage, administer, and work the Taokow-Chinghua section of railway for profit on behalf of the said Railway Administration. Notice of the appointment of the General Manager shall be communicated beforehand to the Director-General for his information and confirmation.

2.—As soon as this section of the line is completed the Pekin Syndicate will report to the Director-General, and after being definitely taken over by him the Pekin Syndicate will take charge of it for working. The section is to be completely provided beforehand with all the rolling-stock necessary for working, as also with a supply of tools, furniture, and funds for working expenses. The Pekin Syndicate or its delegate, in conformity with the stipulation in Article 1, will organize the service. It will have authority to engage or dismiss officials and servants, and as to their salaries a scale thereof will be drawn up beforehand for submission to the Director-General, and subsequent alterations will also be submitted for his approval. The Syndicate shall also purchase all articles necessary for the maintenance and repair of the line, shall fix rates for goods and passengers in accordance with the railway regulations on other lines, shall receive all the earnings and pay all the working expenses and the expenses of the Imperial Chinese Railway Administration relative to this railway. All the above working details must be submitted beforehand by the Pekin Syndicate or its delegate to the Director-General of Railways, and settled in consultation.

The General Administration shall have the fullest power to examine the details of income and expenditure, and to appoint a Representative, a Cashier, Accountant, and an Interpreter, who will be associated with the European staff, in order to exercise the above-mentioned power of examination. The salaries of the Representative and his associates above-mentioned will be paid from the office of the Tsechow-Taokow Railway.

The Representative shall countersign all vouchers for payment. Accounts will be rendered monthly to the General Administration in English and Chinese, one copy each, and signed by the respective English and Chinese officials.

The General Administration reserves the right to cause the dismissal of any employee, whatever his nationality, including the General Manager, who does not perform his work satisfactorily or is guilty of misconduct, insubordination, or disrespect towards the Chinese authorities, and this should be mentioned in the contracts at the time of engagement of the employee.

All Chinese Employees, whether for repairs of line or otherwise, will be selected by the Representative of the Director-General, who

will place them under the executive orders of the General Manager. No Chinese officials or servants can be engaged without the sanction of the Director-General. The expenses of the Shanghai Imperial Railway Administration in respect to this line shall be paid in the same way as for the Luhan Railway. After this section is finished and the working has begun, if additional rolling-stock or plant is required, or if improvement or extensions of the line or stations become necessary, the funds for the same shall be provided by the office of the Tsechow Railway. As regards contracts for the supply of materials necessary for maintaining and repairing the line, means should be devised to place the same at Chinese workshops. It is understood that the mines and workshops controlled by H. E. Sheng shall have the preference on the conditions and at the price at which the articles could be purchased abroad. By price is meant laying down cost in China.

3.—In the event of military operations, whether due to foreign war or internal disturbances, the railway will give the preference to Chinese Government troops, stores, or munitions of war over private merchandise in conveyance over the line.

Rates to be charged in such cases shall be one-half of the ordinary rates, and in such matters the railway will carry out any special instructions given by the Director-General. Articles tending to the injury of the Chinese Government are not to be carried on the line.

In case of famine, stores for relief will be carried at half rates.

Special arrangements will be made in consultation with the Representatives of the Director-General for conveyance of local authorities or members of the Imperial Government travelling on important business over the line. Free passes over the railway shall be countersigned by the Representative of the Director-General.

4.—From the net earnings of the line after paying all working expenses the Pekin Syndicate shall retain such sums as are necessary to meet the service of the loan at least three months in advance of the next half-yearly payment. This procedure will be followed until the whole loan is finally redeemed. The sums retained will be paid over monthly to the Pekin Syndicate, or to the bank appointed for that purpose by the Syndicate. The latter will convert the sums so received into gold at best rate obtainable, in order to be used for the service of the loan. Information as to this will be given from time to time to the Director-General.

When by means of monies thus paid over the service of the loan is assured the Syndicate will set apart 10 per cent. of the surplus, which will be devoted to building up a reserve fund in order to meet the cost of ordinary or extraordinary repairs with a view to assure the working of the line. The surplus of net earnings still remaining will be paid over to the Imperial Chinese Railway Administration. When the loan is all repaid, in accordance with the next following article, the Syndicate or its Representative will hand over to the Representative of the Director-General all the line, fixtures, rolling-stock, and appurtenances, the whole in good working condition.

5.—The duration of the present contract is fixed at thirty years from date of signature. If, however, on the expiry of that date the loan is not fully paid off the term of the contract will be necessarily extended, and it will continue until the whole loan is finally redeemed. But if the loan is finally redeemed before the due date the present working contract shall become null and void from the date of such redemption.

6.—The Pekin Syndicate, during the term of this contract for the working of the line, shall be entitled to receive from the Imperial Chinese Railway Administration, on making up the yearly accounts, 20 per cent. of the surplus profits of each year. By surplus profits is meant what is left over after providing for payment of interest and redemption of capital.

7.—In case of dispute the matter is to be settled as provided for in Article 20 of the principal contract.

8.—If the earnings are insufficient to meet working expenses the Imperial Chinese Railway Administration will provide funds so as to enable the regular working of the line to be kept up. The funds thus supplied will be considered as a temporary advance merely, and to be paid as soon as the income exceeds expenditure.

9.—All materials and supplies which the Syndicate may require for the working, maintenance and repair of the line shall, if imported from abroad, be exempt from Customs duty and likin.

10.—The present contract is drawn up in two copies, one for the Imperial Chinese Railway Administration and the other for the Syndicate.

In case of doubt or difference in interpretation of the contract the English version shall be deemed the standard.

This Contract shall be submitted to the Throne for ratification by the proper authorities, and when the Imperial sanction has been obtained it will be communicated by the Wai Wu Pu in an official despatch to the British Minister. Signed and sealed at Peking the 3rd July 1905.

Signature and Seal of
SHENG HSUAN-HUAI,
Director-General of Railways.
(Signed) G. JAMIESON,
Agent-General, Pekin Syndicate Ltd.

FINAL AGREEMENT BETWEEN SHENG KUNG-PAO, DIRECTOR-GENERAL OF THE IMPERIAL CHINESE RAILWAY ADMINISTRATION, AND THE BRITISH AND CHINESE CORPORATION LIMITED, FOR THE ACQUISITION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM SHANGHAI TO NANKING:—

This Agreement is made the 15th day of the Intercalary month of the 29th year of Kwang-Hsu, corresponding to the 9th day of July 1903, at Shanghai, and the Contracting Parties are:—

The Director-General of the Imperial Railway Administration, Sheng Kung-Pao (to be called hereafter Director-General), acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Company, and the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas, on the twenty-third day of the Intercalary third month of the twenty-fourth year of Kwang-Hsu, being the thirteenth day of May 1898, a preliminary Agreement was signed at Shanghai between the Director-General of the Chinese Imperial Railway Administration, Sheng, acting under instructions from the Tsungli Yamen, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents a British Syndicate, and

Whereas, on the 12th day of December 1902, an Imperial Decree was issued in the following terms:—"In view of the important considerations connected with the construction of railways in various parts a Decree has already been issued apportioning the responsibility for the duties connected therewith. Hereafter the accounts of receipts and disbursements are to be prepared by Sheng Hsuan Huai, and communicated by him for the examination of the High Authorities of the provinces through which the railways pass, and subsequently for submission in a joint memorial to the Throne. When a line of railway has been surveyed, before the work may be begun, plans and specifications must be communicated to the High Authorities above-mentioned, who will depute an official to ascertain that there are no objections. Should Sheng Hsuan Huai enter into any agreement with a foreign Syndicate he must before signing such Agreement obtain the assent of the High Provincial Authorities, and a copy of such Agreement must be submitted to the Throne in a joint memorial," and

Whereas, on further consideration it has been found necessary to make certain alterations in the aforesaid preliminary Agreement, now therefore it is agreed that this final Agreement shall be substituted for the preliminary Agreement above referred to.

Article 1.—The Corporation agrees to issue on behalf of the Railway Administration, a sterling loan (hereinafter referred to as the loan) for an amount not exceeding £3,250,000 sterling, on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire sum, similar to the bonds of the Imperial Railways of North China, with the Railway as first mortgage security therefor. The loan shall be issued in two or more parts, and each series is to be in such amount as the Engineer-in-Chief may determine under direction of the Director-General and the Corporation, in accordance with the extent of the work to be undertaken, so as to prevent the Chinese Government from suffering undue loss of interest. The price agreed upon for the loan is 90 per cent. of the nominal value, and any loss or profit in selling these bonds to the public shall be borne by or go to the Corporation. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, and be payable half-yearly.

The duration of the loan is fixed at fifty years, commencing from the date of the ratification of this Agreement, but no interest will be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London in consultation with the Corporation may sanction.

If any of the bonds or net profit certificates hereinafter mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds or certificates, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record, and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned.

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the railway, and in paying interest on the loan during the course of construction.

The Corporation shall build and equip as economically as possible in accordance with the best modern system, the line from Shanghai to Nanking, it being hereby agreed that the Chinese Administration shall secure the necessary land for a double line of railway for the whole distance, as well as other facilities for the purposes of the construction and working of the line.

When the line is completed, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government for redeeming the bonds, or to be placed through the Director-General in a bank on deposit for the purpose of paying interest on the loan or for developing business beneficial to the Shanghai-Nanking Railway, all to be arranged at the proper time between the Director-General and the Corporation. Should Chinese themselves build branch lines to act as feeders to this railway, it is understood that the system of construction and equipment thereof shall be adopted by such branch lines in order to facilitate through connection.

In all matters relating to the construction and administration of the railway by the officials of the British and Chinese Corporation it is expressly agreed that particular heed shall be paid to the opinions, habits, and ideas of the Chinese people, and that when practicable Chinese shall be employed as far as possible by the Board of Commissioners in positions of trust and responsibility in connection with the railway.

In regard to the earthwork or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese under the sanction of the Director-General or his deputy, said work itself to be in accordance with plans and specifications of the Engineer-in-Chief, and under his supervision.

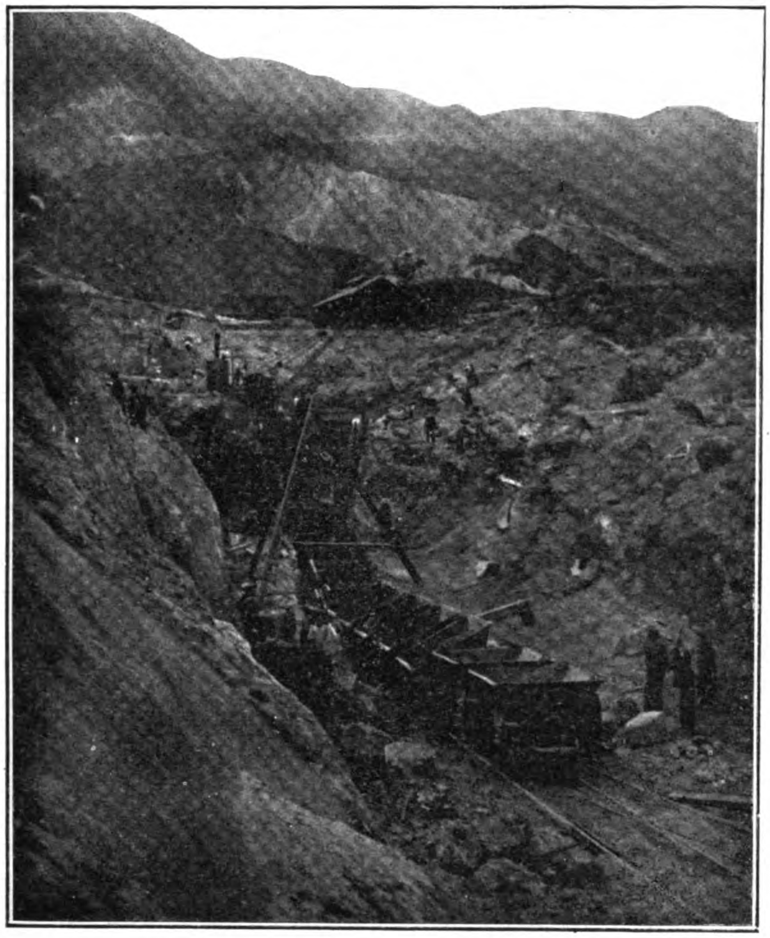
In the further and final survey detailed plans and estimates of cost, whether of the respective sections of the main line or of any extensions, branches, or alterations of the same, are to be submitted to the Board of Commissioners for the approval of the Director-General.

Article 3.—The loan shall be secured by mortgage now entered into in equity, and shall as soon as possible hereafter be secured by a specific and legal first mortgage in favor of the Corporation upon the railway now completed between Woosung and Shanghai, and also on all lands, materials, rolling-stock, buildings, property, and premises of every description purchased or to be purchased by the railways herein referred to, and on the last-mentioned railways themselves as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as of the same purport and effect as a mortgage customarily executed and delivered in England to a trustee for the purpose of securing loans and bond issues upon railway properties.

Article 4.—According to Article 1 of this Agreement it is provided that the loan is to be paid in instalments from time to time as the work proceeds. It is hereby agreed that within eight months after this Agreement is officially signed and ratified the Corporation shall pay the first instalment to meet the requirements for the work, whether the proceeds come from the sale or hypothecation of the bonds or from advances made, provided the appropriate series of bonds for the required instalment of such loan shall have been executed and delivered. If after the expiration of twelve months from the date of the ratification hereof the work of construction shall not have been begun on the main line, this Agreement is to become null and void.

Of the proceeds realised from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and payments of contracts there, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Board of Commissioners hereafter mentioned as being actually required for the construction of any particular section of the main line shall be ordered by the Board of Commissioners after consideration to be transferred to Shanghai to be kept in the Hongkong and Shanghai Bank, or such bank or banks as may be mutually agreed upon, and placed to the credit of the construction account of the Railway Administration for the exclusve purpose of building such section or sections of the railway herein provided for under the supervision of the Board of Commissioners.



THE KOWLOON-CANTON TUNNEL ENTRANCE—COMMENCEMENT OF BORING OPERATIONS

On each occasion of a remittance being made to China the amount realised in sycee will be reported to the Director-General, and any portion which may not be required shall be placed at interest. Similarly the balance in England shall be placed at interest.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Board of Commissioners for examination and for report to the Director-General for the information of the Wai-Wu-Pu and for his further report to the Board of Revenue and the Bureau of Mines for record therein, after such accounts have been approved and signed by him.

Article 5.—The dates of the bonds mentioned in Article 1, and of the certificates mentioned in Article 12 of this Agreement, shall be of even date with this Agreement. Interest shall begin to run upon the bonds only from the date of their respective sales and deliveries to the public, and due adjustment of such interest will then be made with respective purchasers for any fractional period of time thereafter covered by the coupon next maturing. For the purpose of such adjustment the then current interest may be reckoned from the nearest first or fifteenth day of the month in which the sale and delivery occur as the case may be.

Coupons which have theretofore matured are to be cancelled and delivered to the Chinese Minister in London for trasmission to the Railway Administration.

As to the form of bond, it is to be agreed upon by the Director-General or by the Chinese Minister in London and the British and Chinese Corporation at the same time as this Agreement is signed, but if hereafter the money markets in London or other countries require the modification of the form of the bond, except in anything that affects the amount of the loan, the rate of interest, the period of the loan, and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Director-General for the approval of the Wai-Wu-Pu.

The bonds and the net profit certificates referred to in Article 12 are to be engraved entirely in the English language, and shall bear the fac-simile of the signature of the Director-General and of his seal of office, in order to dispense with the necessity of signing them all in person. But the Chinese Minister in London is to sign each of the bonds and certificates and put his seal thereon as required, as a proof that the issue and sale of these bonds as well as the certificates are duly authorised and binding upon the Chinese Government.

Such bonds or net profits certificates are to be numbered consecutively, and as many bonds or certificates as may be needed are to be properly engraved under the supervision of the Corporation.

The loan bonds herein referred to, as soon as they are engraved and signed and sealed by the Chinese Minister in London as hereinbefore provided, are to be countersigned by the Corporation.

The Chinese Minister in London and the Corporation are to agree upon the selection of a proper safe deposit in London to keep these bonds, subject to the needs and requirements of the Corporation, so as to enable it during the progress of the construction to sell these bonds after having been signed and sealed by the Chinese Minister in London in separate lots from time to time, or hypothecate the same in order to raise money to pay for the construction of the railway or any of the branch lines as may have been approved by the Director-General.

When the second and subsequent issues are about to be made, if the Corporation receives sufficient notice from the Director-General that subjects of China wish to take up a portion of the issue, the necessary amount of bonds will be set aside for Chinese subscribers, to whom the bonds will be sold at the same price and on the same conditions as those sold to the public in London. If possible, arrangements will be made for issuing these bonds, and paying the interest thereon, in China, at the current rate of the day.

The amount of the loan is fixed at £3,250,000 for the purpose of constructing and equipping the main line of the Shanghai-Nanking Railway, in accordance with the survey and estimates of the Engineer-in-Chief as approved by the Director-General.

The first issue of bonds shall be made in London in such amount as may seem necessary for the work to be undertaken, but before the second or subsequent issues are made the Corporation shall give sufficient notice to the Chinese Minister in London, in order that if the Chinese Government has funds at its disposal at the time it may place such funds to the credit of the construction account of the Chinese Railway Administration, to be used in the same manner as the proceeds of the loan, and in that event the total amount of the loan of £3,250,000 shall be reduced by the amount thus supplied by the Chinese Government.

It is also agreed that the moderate charge for the safe deposit of the bonds is to be paid from the general accounts of the railway. Beyond this all expense for the engraving and the sale of the bonds and such like are to be borne by the Corporation. On withdrawal or deliveries of bonds the Safe Deposit Company shall notify the Chinese Minister in London

Article 6.—When the work of construction is ready to begin the Director-General shall appoint a Board for surveying the construction and operation of the railway, to be called the Board of Commissioners, whose head office shall be at Shanghai. The members thereof shall be five, of whom two are to be Chinese,—one to be appointed by the Director-General and one by the Director-General in consultation with the High Authorities of the province through which the line passes; and besides the Engineer-in-Chief there shall be two British members selected and appointed by the Corporation. The salaries of these five members are to be fixed by the Director-General and the Corporation, and to be paid from the general accounts of the railway. The regulations for the guidance of the Board of Commissioners shall be subsequently drawn up by the Director-General in consultation with the Agent of the British and Chinese Corporation. In case of disagreement between the Chinese and British members the matter shall be referred to the Director-General and the Agent of the Corporation resident in China for adjustment in an amicable way.

The appointments and functions of all the employees of the railway, Chinese and foreigners, with the exception of the Engineer-in-Chief, who shall be nominated by the Corporation and approved by the Director-General, as well as their salaries, including those of the officials of high rank referred to in the following paragraphs, are to be made and fixed by the Board of Commissioners and reported to the Director-General. In the case of important appointments the same shall be first reported to the Director-General by the Chinese members of the Board.

In addition to the Board of Commissioners, the Viceroy (the Superintendent of Southern Trade) may also appoint an official of equal rank with the above-mentioned two Chinese officials, whose duty will be to make report for the information of the High Provincial Authorities on the state of the railway accounts, the progress of the work, and the management of the railway. To this end he will be granted every facility by the Board of Commissioners, who will always give him access to the records of the head office at Shanghai. But this official shall not in any way interfere with the Board in the performance of its duties. The salary of this officer shall be the same as that of the two Chinese members of the Board, and be paid out of the railway account.

The functions of the Engineer-in-Chief, who will at all times give courteous consideration to the wishes of the High Provincial Authorities and the Director-General, shall be limited to the construction and operation of the line and the management of affairs connected with the railway. No foreigners employed in the railway shall be allowed to treat Chinese officials with disrespect, or interfere in local affairs, or usurp the authority of local officials; and should any such be guilty of riotous conduct, or of wounding and maiming Chinese, the same shall be dismissed on complaint being made by the Director-General.

As the progress of construction reaches any particular province the appointment, under the Imperial sanction, of a Chinese official of high rank shall be made in such province by the Director-General, for facilitating the settlement of any local matter with the Provincial Government concerned.

For the service of the railway any Chinese of official rank and competent for the work may be recommended by the Board of Commissioners to the Director-General for employment, under the formality of a letter of appointment.

For the important offices of the railway foreigners of ability and experience shall be employed. In the engineering and traffic departments competent Chinese may also be employed, and all employees, whether Chinese or foreigners, if incompetent in their work or unsatisfactory in their behaviour, may be dismissed at any time by the Board of Commissioners, and the dismissal shall be reported to the Director-General. The Chinese and British members of the Board when ill or absent may be represented at the Board by available substitutes. In the case of the Chinese members the substitutes must be approved by the Chinese the substitutes must be approved by the Director-General, and in case of the British members by the Corporation.

When deemed necessary a school for the education of Chinese in the construction and working of railways shall be undertaken by the Board of Commissioners, subject to report to and approval by the Director-General.

The accounts of the receipts and disbursements of the railway are to be kept by a Chief Accountant, whose records and books are at all times open to the inspection and examination of the Board of Commissioners. All the accounts of the railway construction and operation are to be kept in Shanghai currency in the English and Chinese languages, with the combined signature of a Chinese and British official. The staff of the Chief Accountant's department shall be composed of Chinese and foreigners, who must be satisfactory and reliable men.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the railways, its property and equipment, said mortgage to be executed by a deed in the usual form as contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this railway is in fact a Chinese property.

All the lands that may be required for a double line of railway from Shanghai to Nanking, and for the double track-sidings, stations, repairing shops, and car-sheds to be provided for in accordance with the detailed plans now made or hereafter to be made by the Engineer-in-Chief, and approved by the Director-General, shall be acquired by the Railway Administration, whether in whole or in part, according to the means at its disposal at the actual cost price of the land. The cost of such land is not to exceed £150,000.

The titles to the land for the line and of all other lands shall be free from all encumbrances or entanglements, and shall from time to time as soon as secured be registered in the name of the railway.

For such money as may be provided by the Railway Administration for the purchase of land there shall be allowed yearly interest at the rate of 6 per cent., to be paid by the railway after the fixed charges and maintenance and interest of 5 per cent. on the bonds shall have been met.

Notices of such purchases (together with corresponding title-deeds) are to be transmitted by the Railway Administration under the direction of the Director-General to the local agent of the Corporation for record and preservation in its office in Shanghai, and for the purpose of establishing the first mortgage security (and thereafter for the return to the Railway Administration) as hereinafter in this Article provided in respect of railway lands and properties. When the term of this Agreement expires all the title-deeds shall be surrendered and returned to the Railway Administration.

The amount to be advanced to the Chinese Railway Administration for any land within the survey limits shall altogether not exceed the sum of £150,000, for which yearly interest at the rate of 6 per cent. shall be allowed from the receipts of the railway. It is understood that any land bought by the Chinese Railway Administration with their own money outside of the survey limits, but needed for future requirements, shall be on the Chinese Administration's own account, and no interest shall be allowed on the price thereof

It is further agreed that if the British and Chinese Corporation is called upon to provide means for the acquisition of the lands, whether by the sale of bonds or by advances from other sources, the Chinese Government guarantees to procure and protect all the lands that are required for the line of railway.

All lands the title-deeds of which are lodged with the Corporation as part of the first mortgage security of the loan shall not be disposed of in any way by hire, lease, or sale to any party for any purpose whatever without the written consent of the Chinese Administration.

It is also agreed that the lands thus bought, whether from Chinese or British advances, shall be free from all entanglements arising from the removal of graves or from prejudices of "fengshui," and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Shanghai office of the British and Chinese Corporation, and to be held by it as a first mortgage security for the bonds under the provisions of this Agreement until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Chinese Railway Administration.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, and the net profits on the net profit certificates shall have been paid, no part of the lands comprised in the mortgage security or the railway with its appurtenances shall be transferred or given to another party, or shall be injured, or that the rights of the first mortgage shall be in any way impaired.

It is likewise agreed that until the interest and principal of the loan and all indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Chinese Railway Administration shall not again mortgage the above properties to another party, whether Chinese or foreign.

During the period of this agreement no special taxes shall be levied by the Chinese Government on the railway, its appurtenances or earnings, but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the railway and its operations.

The first expense in railway construction being the purchase of land, it is agreed that as soon as the survey is made the Corporation shall advance to the Railway Administration sums as required to pay for the land purchased. For such advances the Woosung Railway, with all its property, shall be given as first mortgage security, and interest at the rate of 6 per cent. per annum shall be allowed until the first portion of the loan has been floated, when such advances shall be repaid from the first proceeds of the loan.

As owing to the unwillingness of owners to sever their land it may become necessary for the Railway Administration to acquire more land than is actually necessary for railway purposes, the Railway Administration may do so in view of future requirements, but it is understood that any land bought from funds so advanced, out of the survey limits, shall be on the Chinese Administration's own account. When the purchase of all the land is completed, and the total amount thus expended is ascertained, an additional issue of bonds for an amount not exceeding £250,000, including the £150,000 referred to in this Article, shall be made in order to repay the sums spent in the purchase of land.

Such bonds shall be similar to the bonds mentioned in Article 1 of this Agreement, and shall have the same guarantee and same mortgage security and same treatment, with, however, this difference, that they shall be redeemable at par at any time on giving six months' notice, and that the rate of interest shall be 6 per cent. per annum. The interest on such portions of this loan as is applied to the purchase of land outside of the Engineer-in-Chief's survey shall in the first place be paid out of the Chinese share of the net profits of the railway, and failing this then out of the earnings of the railway.

As the object which the Railway Administration has in view is that all railway lands should be Chinese property, the additional loan of £250,000 shall be paid off as soon as practicable. Nevertheless, although such bonds may be redeemed, the land occupied by the railway within the survey limits shall continue as mortgage security under the terms of this Agreement.

Article 8.—It is agreed that if the half-yearly interest of the bonds is not paid on any

due date thereof, or if the principal of the loan remains unpaid at maturity of the same, the whole railway with all its appurtenances herein mortgaged to the British and Chinese Corporation for the bondholders shall be handed over to the Corporation to be dealt with by it according to law, in such manner as will ensure the proper protection of the interests of the bondholders. When the whole loan and the interest due thereon and all indebtedness shall have been paid off, the railway, with all its appurtenances, in good working condition shall revert to the possession and management of the Chinese, according to the provisions of this Agreement.

Article 9.—As remuneration for superintendence and services the Corporation shall receive 5 per cent. on the entire cost of all materials purchased for the railway.

It is agreed that all materials required for the railway shall be purchased in the open market at the lowest price obtainable, but it is understood that all such materials shall be of good and satisfactory quality. Invoice and inspector's certificates are to be submitted to the Chinese Administration.

With a view to encouraging Chinese industries Chinese materials are to be preferred, as also the products of the Han-yang Iron Works, provided price and quality are suitable.

No commission will be allowed to the Corporation on the purchase of materials except as herein provided. All trade discounts or rebates, if any, are to go to the construction account.

Article 10.—In the construction of the line, in the working of the railway, and in the performance of the different kinds of business connected with the railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the line while in construction or when in operation, and all the properties of the railway, the combined enterprise of the Chinese Administration and British and Chinese Corporation, as well as all foreigners and Chinese employed therein, are to enjoy the utmost protection from the local officials, civil and military, in the provinces through which the railway passes, particularly on occasions of local disturbance or of obstruction by natives.

The Board of Commissioners are authorised to maintain a railway police of Chinese with Chinese officers for the protection of the line. Their wages and maintenance are to be wholly defrayed by the railway. In the event of the railway requiring further protection by the military forces of the Imperial or Provincial Government the same will be duly applied for by the Director-General and promptly afforded, it being understood that such military forces, although transported free by the railway, are to be maintained at the expense of the Government or the Province, as the case may be.

The railway police may not interfere with matters outside the railway.

Article 11.—In connection with the railway there shall be established and maintained a proper signalling service, which shall include such telephone and telegraph conveniences as may be found necessary to use along the line of the railway and its branches for the exclusive purpose of regulating the movement of trains and other incidental business of the railway, and such telephones and telegraphs shall not be used in or interfere with the rights and privileges of the Telegraph Administration.

It is further agreed that the Corporation may, in consultation with the Director-General, also establish and maintain in connection with such railway or its branches such other necessary adjuncts of modern railway operation as it may find expedient for the support of the railway, such as repair and manufacturing shops, docks, steamers, ferries, storage warehouses, etc.

Article 12.—It is agreed that after deducting from the income of the railway the working and other expenses as described below, the Corporation shall receive 20 per cent. of the net profits, to be represented by and in form of certificates to an amount equal to one-fifth of the cost of the line. These certificates carrying no interest, they are to have a term of fifty years and a declared face value of £100 each, and are to be issued to the Corporation at the same time as the loan bonds, and in amount proportionate to the respective series of such bonds to the amount of one-fifth of the aggregate thereof. And it is understood that if there is an issue of the loan bonds in excess of the requirements of the railway, and such excess is retired or cancelled, a like proportion of these certificates shall likewise be subject to retirement.

Before the expiration of the term of fifty years the Chinese Administration shall have by effluxion of time, the Corporation shall be permitted to have a representative in the railway office (whose salary is to be paid by the Railway Administration) to inspect the accounts of the railway.

The duties of this officer are those of an Accountant who is to protect the interests of the foreign holders of net profit certificates until such time as these certificates shall have all been redeemed or lapsed by effluxion of time, when the services of such Accountant shall be dispensed with.

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the right at any time to redeem these certificates at their face value. After the expiration of fifty years the certificates shall be null and void and need not be redeemed, but if any net profits shall have accrued on such certificates prior to their redemption or maturity, said accrued net profits must be paid before the same are cancelled.

The Chinese Railway Administration is entitled to issue and receive like net profit certificates (to be in form appropriate for use in China and unlimited in their term, as also without redemption features) to an amount equal to the remaining four-fifths of the loan. These Chinese certificates may be issued in whole or in part whenever desired by the Director-General, but the net profits will be retained and used by the Railway Administration for the purpose of accumulating a fund to be derived from such share of net profits as may accrue thereon wherewith to pay off any loan bonds which may from time to time be redeemed under the provisions of this Agreement, or for generally reducing or ultimately discharging railway loan obligations whenever or wherever desirable by means of the profits of the railway. But such Chinese certificates may, however, be used in part by the Railway Administration if necessary in payment of lands which are essential to the railway, and which cannot otherwise be conveniently acquired by it.

The yearly income of the railway shall be subject to a deduction of all working expenses, cost of maintaining and repairing the railway, renovating or replenishment of engines and rolling-stock, and all expenditure connected with the business of the railway, and subject to the payment of interest on the bonds at 5 per cent. per annum (and of interest of 6 per cent. per annum on the cost of the land provided by the Chinese Administration, or provided by an advance from the British and Chinese Corporation), whatever is left of the gross income is considered to be net profits, of which one-fifth is to be given to the Corporation for disposal as it may see fit. If the loan bonds shall have been all redeemed according to the provisions of this Agreement before the net profit certificates issued to the Corporation have been redeemed, or shall have lapsed

Article 13.—The British and Chinese Corporation are hereby appointed trustees for the bondholders and holders of net profit certificates, and in any future negotiations respecting these loans or matters arising in connection therewith, which may take place between the Railway Administration and the Corporation, the latter Corporation shall be taken as representing the bondholders and holders of net profit certificates, and as empowered to act on their behalf.

Article 14.—All materials of any kind that are required for the construction of the main line or branch lines, whether imported from abroad or from the provinces to the scene of the work, shall (following the precedent of the Northern Railway) be exempted from Customs duty and likin. The bonds of this loan together with their coupons, the net profit certificates and the income of the railway, shall be free from imposts of any kind by the Government of China.

As to the likin for goods or passengers which may be transported over the lines from, to, or through the different provinces, the Director General will confer with the Government Bureau of Mines and Railways and the Board of Revenue with a view to devising means to protect the traffic of the railway, and those who may use the railway for the transport of their goods, from illegal impositions and other abuses.

If the arrangements for the levy of likin over other railway lines is found to be more advantageous than that of the railways mentioned in this Agreement, the same advantages shall be extended to and enjoyed by the Shanghai-Nanking Railway, and by those who make use of the same.

Article 15.—It is agreed that during the time of the construction of the line the yearly 5 per cent. interest on the bonds and 6 per cent. interest on the amount spent in the purchase of the land are to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings from the working of any sections as they are built, are to be used to make up the amount required for the payment of the said interest, and if any

deficiency remains it is to be met from the proceeds of the loan.

When the construction of the line is wholly completed the interest on the bonds and on moneys spent in purchasing the land are to be paid from the earnings of the line every half-year on the first day of June and first day of December.

It is hereby agreed that the amount required for the payment of interest and repayment of principal, together with a sum of one-quarter of 1 per cent. on such amounts to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed agents for the service of repaying the loan, shall be paid to them in Shanghai fourteen days before the due dates, in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation on the said date of payment at the rate fixed at the time of settlement.

The Chinese Government undertakes and hereby promises to pay the principal of the loans and the interest on the loans on the due dates fixed therefor. If at any time the earnings of the railway and proceeds of the loan are not sufficient to pay the interest of the bonds, the Railway Administration is to devise means for supplying the deficiency; and should its inability to do so appear probable the Director-General will memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due date of such interest in the hands of the Hongkong and Shanghai Banking Corporation in Shanghai.

Article 16.—In places along the line of railway where the Hongkong and Shanghai Banking Corporation has no agencies, and where it does not intend to establish any agencies, business relations are to be cultivated with the Chinese Imperial Bank and its local agencies, it being the intention of the British and Chinese Corporation to utilise the Imperial bank as much as practicable for facilitating the movement of funds.

Article 17.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to their successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement or the management of the railway to other nations or people of any nationality except British or Chinese. Similarly the Railway Administration shall not transfer any of its rights under this Agreement to persons of other nationality.

It is further agreed that without the express consent in writing of the Director-General and the British and Chinese Corporation no other rival railway detrimental to the business of the same is to be permitted, and no parallel line to the Shanghai-Nanking Railway is to be allowed to the injury of the latter's interest within the area served by the Shanghai-Nanking main line or branch lines.

Article 18.—If on account of contingencies beyond the control of the Corporation, such as war or very great political changes in China or elsewhere, occurring before the publication of the prospectus of the issue of an important series of bonds of the loan hereby concerned, the foreign money markets are affected, or the construction of the railway is so obstructed that work cannot be carried on, the Corporation will be allowed a reasonable extension of time for floating such loan or the bond issues thereof, or for the commencement or completion of the construction of the railway. But if bonds have already been issued and interest already become payable thereon, then the work cannot be suspended or postponed unless subject to the exceptions mentioned in the preceding paragraphs.

When the Agreement has been ratified the work shall be begun as soon as possible, and if the Chinese Railway Administration desire, each section will be pushed on as rapidly as practicable. From the date of ratification a limit of five years shall be allowed for the completion of the whole line, subject to the preceding exceptions mentioned in this Article; and if this period is exceeded, unless with the consent of the Chinese Administration, the Corporation shall forfeit its one-fifth share of net profits already earned during the previous five years, and shall not begin to participate in such net profits until the line has been completed.

Article 19.—In the working of the railway the tariff for fares and freights is to be prepared by the General Traffic Manager, and submitted to the Board of Commissioners, who shall, after due consideration of existing tariffs of other railways in China, approve an economical rate.

The General Traffic Manager is likewise authorised to make arrangements, subject to the approval of the Board of Commissioners, with connecting railways of other companies for through rates of fare and freight.

In case of military operations, whether on account of foreign war or internal insurrection, the movement of troops, ammunition, and stores, by the Chinese Government, and in case of famine or other great calamity, the despatch of relief shall, on the requisition of the Director-General, have preference over the line at half of the tariff rates.

Nothing to the injury of China shall be allowed to be carried over the line, neither shall the line be used to the detriment of China.

Article 20.—In the Preliminary Agreement, dated 13 May, 1898 (23rd day of intercalary 3rd Month of the 24th Year of Kwang-Hsu), it is stipulated that the Railway Administration has the right to redeem the loan at 102½ after twelve and a half years, and at par after twenty-five years. It is now agreed that if at any time after the lapse of twelve and a half years from the date of the issue of the bonds the Chinese Railway Administration receives instructions from the Chinese Government to cancel any of the bonds or any of the net profit certificates, the Director-General shall, not less than six months previous to the proposed redemption, notify in writing the Agent of the Corporation in Shanghai declaring the number of bonds or the number of net profit certificates so required to be redeemed and cancelled.

The Agent of the Corporation shall immediately on the receipt of such notice in writing proceed to make arrangements for the desired redemption by drawing lots, and taking other proper steps in the way customary in London, of the number of bonds or net profit certificates in such quantity as may be required. And as soon as the Railway Administration, under instructions from the Chinese Government, shall remit the proper amount according to the redemption price of the bonds or the redemption price of the net profit certificates, together with the interest due on the bonds, or the net profits due on the certificates, a notice shall be published in two of the most prominent papers in London, and in such other financial centres as may be agreed upon with the Chinese Minister for four weeks. At the expiration of the four weeks, and on the day fixed for the redemption, the Corporation shall cause the usual lots to be drawn for the redemption of the bonds or certificates, and shall pay over the respective prices of the same to their respective holders, and shall thus redeem the bonds or net profit certificates and cancel them, and thereupon the same are to be delivered to the Director-General, or the Chinese Minister in London, for return to the Director-General.

All the loan bonds and the net profit certificates shall express that they are redeemable at any time on the conditions mentioned in the preceding paragraph, and shall state that the payment of any interests for the bonds, and of the participation of any of the net profits by the certificates so drawn by lot, entirely cease from the date entioned by the published notice of the Corporation. The amount required for the redemption shall, however, have to be got ready and placed in the hands of the Hongkong and Shanghai Banking Corporation before such redemption is carried out.

The loan bonds, if redeemed before twenty-five years from the date they were originally issued, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay £100), but after twenty-five years from the date of issue to the expiry of the term of the loan the bonds may be redeemed without payment of any premium. If any interest is still due on any of the bonds at the time of redemption, such interest shall have thereupon to be paid in full. As to the net profit certificates, if they are redeemed within the term of their duration they are to be paid for according to their face value, and such certificates run to the end of their term they become null and void and no price need be paid on them, nor need they be redeemed, but any net profits still due on them shall have to be fully paid up according to their amounts before the same are cancelled.

Article 21.—If any proceeds of the sale of bonds are lying unused and bearing interest on their deposit whilst the construction of the railway is going on, such interest is to go to the general account of the Chinese Railway Administration, in order that the Railway Administration may enjoy the full advantage thereof.

It is also agreed that if the Corporation shall find it necessary, before the sale of any of the bonds, to advance any money for the work, the expense of effecting such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the interest derived from the above mentioned unused proceeds of the sale of the bonds, or otherwise to be provided for in the construction accounts. It is further agreed that the proceeds of the first sale of the bonds immediately following any such advance shall be used to pay off the said advances, so as to save the cost of the aforesaid charge.

Article 22.—If any of the bonds still remain unredeemed, when the fifty years of the term of the loan are about to expire, the Director-General will, within two years preceding the expiry of the said term, negotiate by writing with the Corporation for an extension of the term of the loan; and if six months shall have expired after such negotiations in writing and no definite arrangements shall have been come to, the Chinese Government shall be at liberty to take steps to devise means for procuring elsewhere funds to pay off the loan, and to redeem the bonds and cancel the mortgage.

Article 23.—The existing Woosung-Shanghai line (as soon as the price agreed upon is ready to be handed over to the Railway Administration) shall be taken over as part of the Shanghai-Nanking system, and the earnings and administration of this section shall be treated in like manner as the Shanghai-Nanking line. The price of the Shanghai-Woosung line shall be taken as Tls. 1,000,000, and this amount shall be paid to the Chinese Railway Administration out of the proceeds of the loan.

Article 24.—Immediately after the signature of this Agreement, and before the issue of any prospectus of the loan to the public, the Director-General shall memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement. The Imperial Edict so received shall then be officially communicated without delay to the British Minister in Peking by the Wai-Wu-Pu.

Article 25.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Railway Administration, one by the Wai-Wu-Pu, one by the Bureau of Railways and Mines at Peking, one by the British Minister in Peking, and one by the Corporation, and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Shanghai by the Contracting Parties this fifteenth day of the intercalary fifth month of the twenty-ninth year of the Emperor Kwang-Hsu, being the ninth day of July nineteen hundred and three of the Western Calendar.

TIENTSIN-CHINKIANG (NOW NANKING) RAILWAY: PRELIMINARY AGREEMENT.

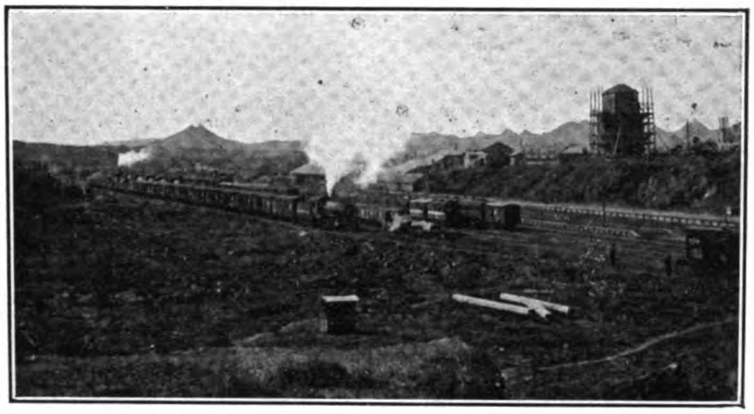
This Preliminary Agreement relating to the construction of railways between Tientsin and Chinkiang, is made between their Excellencies Hsu and Chang; duly authorized to act on behalf of the Imperial Government of China, hereinafter called "the Imperial Directors" of the one part; and (*a*) the Deutsche-

Asiatische Bank; (*b*) the Hongkong and Shanghai Banking Corporation for themselves and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, hereinafter called "the Syndicate" of the other part.

1. The Imperial Government of China authorizes the Syndicate to issue an Imperial Government 5 per cent. gold loan for an amount of about £7,400,000, this amount being subject to modification later after the completion of survey.

2. The loan is designed to provide the capital for the construction of Government railway lines from a point at or near Tientsin, through Titchow and Tsianfu to Thsien near the southern frontier of Shantung, hereinafter known as the northern part of the Tientsin-Chinkiang Railway lines, and from Thsien to Kuachao (Chinkiang) on the Yangtze Kiang, hereinafter known as the southern part of the Tientsin-Chinkiang Railway lines, the total length of these lines being about 982 kilom., equal to about 1800 Chinese li.

3. The capital so provided will include the funds required for rolling-stock and other equipment, and for working the lines, together with interest on the loan during the period of construction, which is estimated to occupy about five years from the date of the loan, but which will finally be fixed after survey.



1926.—VIEW OF CONSOLIDATED ENGINE BUILT BY THE AMERICAN LOCOMOTIVE CO. HAULING TRAIN OF AMERICAN CARS INTO TAIREN YARD

4. The rate of interest for the loan shall be 5 per cent. per annum on the nominal principal, and shall be paid during the time to be fixed for the construction out of the proceeds of the loan, and afterwards out of the revenue of the lines named, in half-yearly instalments, according to the amounts and dates of a schedule which will be attached to the Final Agreement.

5. The term of the loan shall be fifty years. Repayment of principal shall commence in the eleventh year from the date of the loan, and shall be made by a yearly sinking fund in shares to be determined in the Final Agreement to the Deutsche-Asiatische Bank, and the Hongkong and Shanghai Banking Corporation in yearly instalments out of the revenue of the lines according to the amounts and dates of the schedule to be attached to the Final Agreement.

6. In the event of the Imperial Government of China wishing to redeem, after the lapse of thirty years from the date of the loan, the outstanding amount of the loan, or any portion of it not yet due, from funds *bona fide* belonging to the Chinese Government or subscribed by Chinese merchants, the conditions for such redemption must first be arranged with the Syndicate when the time arrives.

7. The yearly payments due for amortisation and the half-yearly payments due for interest, except as otherwise provided in Clause 4, shall be made in accordance with the amounts and dates of a schedule to be attached to the Final Agreement, in shares to be determined by the Final Agreement, out of the joint net revenues of the railway lines to the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation by the Boards of Commissioners hereinafter mentioned, who shall hand to those banks, at their branches in Shanghai, twenty-one days before the due date named in the schedule, funds in Shanghai sycee sufficient to meet such payment in sterling in Europe, the rate of exchange for which shall be settled with those two banks on the same day on a fair basis.

In reimbursement of expenses connected with the service of interest and principal of the loan, the two banks will receive a commission of ¼ per cent. on the annual loan service.

8. The Imperial Government of China hereby engages that the interest and principal of this loan shall duly be paid in full, and should the revenues of the railways not be sufficient to provide for the due and full payment of interest and repayment of principal of this loan the Imperial Directors must memorialize the Throne, and the Imperial Government of China will then make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the banks twenty-one days before the due date of the funds required to complete full payment of interest and repayment of principal.

This clause to be open to reconsideration in the Final Agreement.

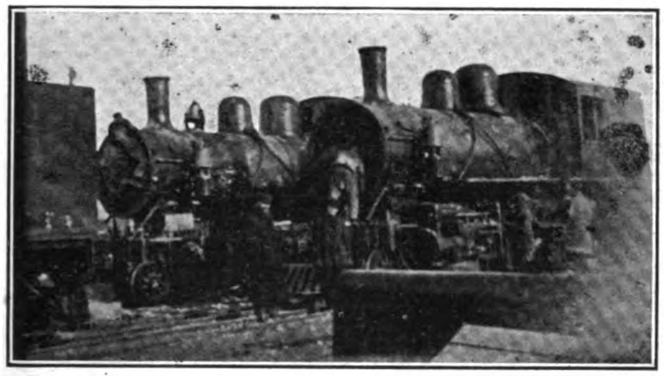
9. This entire loan shall be secured by a first mortgage on the permanent way, rolling-stock, and entire property, together with the revenue of the lines named in Clause 2. No further loan, charge, or mortgage shall be charged on this security, except with the written consent of the two banks, until the present loan is returned. In the event of default in payment of interest or repayment of principal of this loan on due date the railway lines and property so mortgaged shall be handed over to the Syndicate, to be dealt with in such a manner as may be legal and necessary for the full and effective protection of the bondholders. When the loan is completely redeemed, Clause 29 of this Agreement shall take effect.

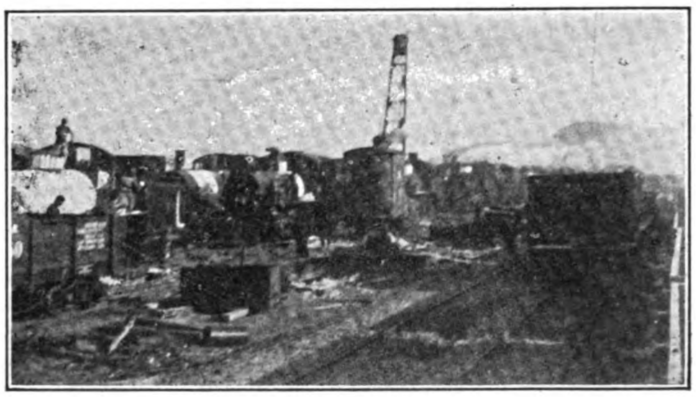
10. The Syndicate will be authorized to issue to the subscribers to the loan, bonds for the total amount of the loan in pounds sterling in such form, in such languages, and for such amounts as shall appear advisable to the Syndicate, and these bonds shall be sealed in China by the Imperial Directors and in Europe by the Minister for China, in Berlin or London, as evidence that the Imperial Government of China is bound thereby as debtor of the loan. Provision will be made in the Final Agreement for the case of bonds lost, stolen, or destroyed.

11. All bonds and coupons and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imports for ever.

12. All details necessary for the prospectus and connected with the service of the interest and repayment of the principal of this loan, not explicitly provided for by the Final Agreement, shall be left to the arrangement of the Syndicate, who will be authorized to issue a prospectus of the loan as soon as possible after the signing of the Final Agreement.

The Imperial Government of China will instruct the Chinese Ministers in Berlin and London to co-operate with the representatives of the Syndicate in any matters requiring conjoint action, and the Chinese Minister in Berlin will sign the prospectus of the loan as required by the Rules of the Berlin Stock Exchange.





ROLLING STOCK IN ERECTION YARD AT TAIREN—200 ENGINES AND HUNDREDS OF BROAD GAUGE CARS ASSEMBLED HERE

13. The loan shall be floated in one or more series at the discretion of the Syndicate, due regard being had to the interest of China; but the floating of the loan shall not be delayed more than necessary, subscriptions being invited by the Syndicate in Europe and in China from both European and Chinese on equal conditions.

14. The price of the loan shall be 90 per cent. net on the nominal principal to the Chinese Government. The proceeds of the loan shall be paid to the credit of a Tientsin-Chinkiang Imperial Government Railway account with the Hongkong and Shanghai Banking Corporation, London. The payment into the credit of these accounts shall be made in such instal-

ments and on such dates as the conditions allowed to the subscribers to the loan shall admit.

Interest at a rate to be arranged from time to time shall be granted on the credit balance of the railway accounts.

After deduction of the funds required for the service of interest and for commission on this service during the time of construction, the Deutsche-Asiatische Bank will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the northern part of the Tientsin-Chinkiang Railway lines, and the Hongkong and Shanghai Banking Corporation will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the southern part of the Tientsin-Chinkiang Railway lines. The Commissioners, in drawing the sums necessary for the construction, shall give notice to the banks fourteen days before the day on which they are required.

15. If during the time of construction the whole amount of the instalments with accrued interest to be paid by the Syndicate should, after deduction of the sums necessary for the service of interest on the loan, not be sufficient for the construction of the railway lines, the amount of deficiency shall be provided by a supplementary loan to be issued by the Syndicate, the interest and other conditions of which are to be the same as in this Agreement, but the price must be arranged when the time arrives.

If after the completion of the lines there should be a balance at credit of the Tientsin-Chinkiang Railway account, the Syndicate shall transfer such unused balance to the credit of the loan service reserve fund, hereinafter mentioned as a provision for payments to which the Government is bound by Clause 8 of this Agreement.

16. If before the publication of the prospectus for the issue of the loan any political or financial crisis should take place in Europe or elsewhere, by which the markets and the prices of existing Chinese Government stocks are so affected as to render the successful issue of the loan impossible on the terms herein named, the Syndicate shall be granted such extension of time for the performance of their contract as the circumstances demand, or shall have the right to withdraw from their contract with the Chinese Imperial Government, which shall in that case become null and void.

17. The Deutsche-Asiatische Bank on the one side, and the Hongkong and Shanghai Banking Corporation for themselves, and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, on the other side, shall take the loan in shares to be agreed upon by the Syndicate, and without responsibility for each other.

18. The northern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the Deutsche-Asiatische Bank, and the southern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the British and Chinese Corporation Limited, under conditions as follows:—For each of these parts a Board of Commissioners shall be appointed to superintend the construction, equipment, and working of the railway lines in accordance with regulations to be arranged between the Imperial Directors and the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited.

19. An office shall be provided for the Imperial Directorate, and a head office shall be established for each Board of Commissioners. The Board of Commissioners for the northern and southern parts of the lines respectively, appointed to superintend the construction and administration, shall each consist of five members, two Chinese managers representing the Imperial Directors and nominated by them, and three European members, namely, a representative of the Bank concerned, the Manager and the Chief Engineer, to be nominated by the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited.

In case any foreign or Chinese members of the Boards of Commissioners do not work well together, it shall be open to the Imperial Directors, the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited, to mutually discuss means to arrange and deal with the matter.

The foreign and Chinese railway staff, including a Ti-tiao, shall be appointed by the Boards of Commissioners, who will report the appointment to the Imperial Directors. In the event of an important appointment the two Chinese members of the Boards may first consult the Imperial Directors.

The principal members of the railway staff shall be capable and experienced Europeans, but Chinese with sufficient experience in engineering or traffic may also be appointed.

Foreign and Chinese members of the railway staff shall, in the event of incapacity or misconduct, be dismissed by the Boards of Commissioners, who will inform the Imperial Directors of the same.

The salaries of the five members of each Board of Commissioners and of the foreign and Chinese railway staff shall be arranged by the Deutsche-Asiatische Bank, the British and Chinese Corporation Limited, and the Imperial Directors, and paid by the head office of their respective sections.

20. The plans, estimates, and all matters relating to survey must be submitted for approbation to the Board of Commissioners. The Chief Engineer shall indicate to the Chinese Commissioners the land which it is necessary to purchase, and which must be sufficient for the construction of a permanent way with double lines and dependencies, and the Chinese Commissioners shall thereupon effect such purchases at a price to be based on a scale to be arranged after survey. In the event of the route proposed by the Chief Engineer passing through towns, villages, graveyards, or other points where much obstruction is encountered, the Chief Engineer will, together with the Board of Commissioners, consider means of diverting the proposed railway route in order to avoid difficulties.

21. After completion of the survey and due inquiry as to the prevailing provincial likin and customs dues, the Imperial Directors will arrange with the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, regulations for the payment of likin and duty upon merchandise and live stock in transit over the railway lines.

22. All materials necessary for the construction and working of the lines, obtained either from foreign countries or from other provinces of China, and the revenues derived from the railway, shall be exempt from duty or taxation of all kinds, and the Imperial Government of China will instruct the customs and likin authorities accordingly.

All material, plant, and goods shall be ordered from the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, on conditions to be arranged in the Final Agreement.

The plans, estimates, and requisitions for materials shall be submitted to the Board of Commissioners by the Chief Engineer for reference at their discretion to the Imperial Directors, and the same shall be furnished by the Deutsche-Asiatische Bank and the British and Chinese Corporation on the best possible terms.

Due consideration will be extended to materials from the Hanyang Iron Works, if available when required, and of a quality satisfactory to the Chief Engineers of the Syndicate.

23. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall, during the working of the lines, maintain the railways, buildings, works, rolling-stock and dependencies in good order and condition.

24. Branch lines or extensions in connection with the Tientsin-Chinkiang Railway lines that may appear profitable or necessary later on shall be the subject of negotiations between the Imperial Directors and the Syndicate.

25. The tariff to be introduced by the European Manager shall be approved by the Boards of Commissioners, who will take into consideration the tariffs of other existing railway lines in China, while keeping in view the necessity for attracting traffic. The European Manager may also be instructed to enter into arrangements for tariffs on through traffic connecting lines. In case of war, foreign or internal, the railway lines shall be reserved in the first instance for the transport of Chinese troops, commissariat, and munitions of war under the order of Imperial Directors, and at half the ordinary tariff rates, and the railways shall not engage in any service injurious to China. In case of famine, grain will also be transported over the lines at half the ordinary tariff rate, under orders of the Imperial Directors.

26. All payments made and received in connection with the railway lines will be subject to the control of the Boards of Commissioners, and after the line is working estimates of receipts and expenditure shall be similarly submitted to the Boards. Regular accounts shall be furnished through the Imperial Directors to the Railway and Mining Bureau of the Tsung-li Yamen and the Board of Revenue, Peking. All payments made must be represented by Chinese or foreign vouchers as the case may be.

27. The profits from working completed sections of the railways during the time of construction shall be credited to railway construction account.

28. Should any traffic business be apparent later on as likely to benefit the Imperial Government of China and increase the earning power of the railway lines, the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall represent the same to the Imperial Directors, and request them to obtain the necessary authority to arrange the business.

29. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall work the lines on behalf of the Imperial Government of China until the present loan is redeemed. As soon as the loan has been completely redeemed this Agreement shall become null and void, and the railway lines and property named in this Agreement shall be handed over to the absolute disposal of the Chinese Government.

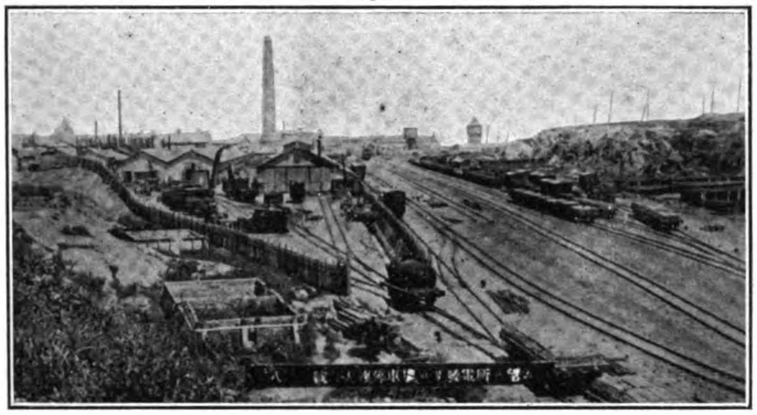
30. The annual net revenue is understood to be that resulting from the gross receipts of the passengers and goods traffic and the income from other sources, after deducting all working expenses, including maintenance of the permanent way, repairs and renovation of machinery and rolling-stock, and all expenses of administration, besides deducting an amount to be determined by the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited as sufficient for accumulating a reserve fund for extraordinary improvements or repairs. Of the surplus of the joint net annual revenue of the northern and southern railway lines, after payment of interest and repayment of principal of the loan, first, a participation of 20 per cent. will be granted to the Syndicate in remuneration for their management of the construction and the working of the railway lines; secondly, an amount equal to 10 per cent. of the gross earnings will be transferred to a loan service reserve fund, deposited with the two Banks, and the remainder will be at the disposal of the Imperial Government of China. An account of the said loan service reserve fund will be rendered yearly to the Railway and Mining Bureau of the Tsung-li Yamen and to the Board of Revenue, and the fund will be drawn upon only in the case of the revenue of the railway lines being insufficient to meet the service of interest and principal of the loan. On redemption of the loan being completed the balance of this fund will revert to the Chinese Government.

31. The powers and authority given and delegated to the Imperial Directors by the Imperial Government of China shall, in the case of their promotion or removal, be transferred to their successors, and the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation, Messrs. Jardine, Matheson & Co., and the British and Chinese Corporation Limited, may, subject to all their obligations, transfer or delegate all or any of their rights, powers, and discretions to any German or English Company, directors, or

agents, with or without power of further transfer and sub-delegation.

32. Differences arising between the Imperial Directors and the Syndicate will be taken up and decided with equity and justice by the Tsung-li Yamen on the one side, and the Minister for Germany and the Minister for Great Britain in China on the other side.

33. As soon as possible after the signature of this Agreement the Engineers of the Syndicate will be authorized by the Imperial Chinese Government to survey and report upon the



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SOUTH MANCHURIA RAILWAY'S OLD SHOPS AT TAIREN (DALNY)

proposed railway lines, when, subject to such report being satisfactory to the Syndicate, this Preliminary Agreement will be ratified by the Syndicate and replaced by a Final Agreement containing all necessary details. Modifications in the conditions of this Preliminary Agreement may be made, subject to the consent of both parties.

34. The provisions of this Preliminary Agreement shall, immediately after signature, be ratified by an Imperial Edict (*) which shall be communicated by the Tsung-li Yamen to the Ministers for Germany and Great Britain in Peking.

35. Five sets of this Agreement are executed in English and Chinese, one set to be retained by the Tsung-li Yamen, one by the Railway and Mining Bureau, and one by each Contractting Party.

In the event of any doubt arising regarding the interpretation of the Contract, the English text shall rule.

CONTRACT FOR BUILDING A RAILWAY FROM KAI-FENG FU TO HO-NAN FU. (Signed at Shanghai, 1904.)

Between the undersigned:

1. The Imperial Chinese Railway Company, represented by H. E. Sheng Kung Pao, Director-General, duly authorized by the Chinese Government.

2. La Compagnie Générale de Chemins de Fer et de Tramways en Chine, represented by Monsieur Armand Rouffart, its delegated Administrator, provided with full powers.

It has been agreed as follows:

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has asked, in a report, the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-Pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of ———.

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan (*Emprunt du Gouvernement Chinois 5 pour cent or Extérieur* 1903).

Article 2.—This loan shall be represented by 50,000 bonds of 500 francs gold each.

These bonds, the text of which is annexed to the present contract (Annex 2), shall be signed in the name of the Chinese Government by the Minister Plenipotentiary of China at Brussels.

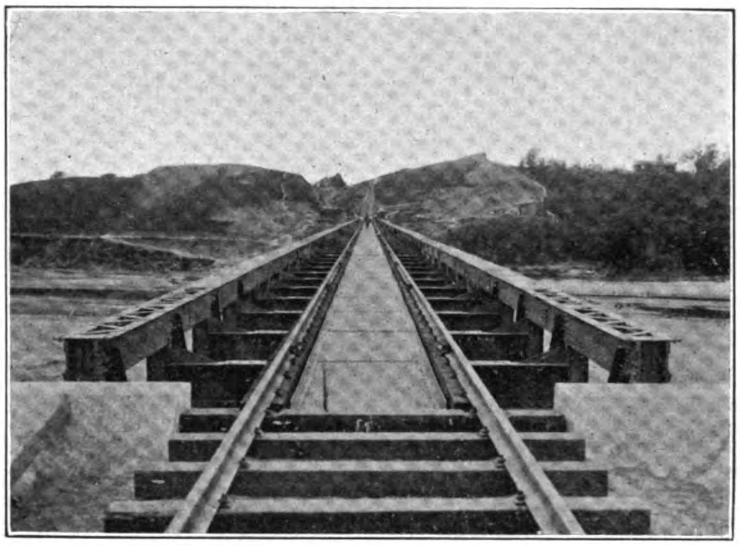
They shall be delivered in fractional bonds (coupons) of 1 to 2 bonds, in such proportion as the Compagnie Générale de Chemins de Fer et de Tramways en Chine may request, the total number not to exceed 50,000; the expense of making these bonds shall be charged to the Compagnie Générale de Chemins de Fer et de Tramways en Chine. They shall bear 5 per cent. interest a year on the nominal capital payable in gold.

Interest shall run from the date of payment of the product (of the sale) of the bonds, and shall be payable the 1st January and 1st July of each year.

Coupons which have become due and have been paid shall be classed in numeric order by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and at its expense, and it shall then send them to the Imperial Chinese Railway Company at Shanghai to be cancelled. If the returned coupons are lost in transmission the Compagnie Générale de Chemins de Fer et de Tramways en Chine must publish the numbers of the paid and lost coupons in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 3.—The loan shall be redeemed in twenty years counted from the tenth year of issue, by the method of drawing by lots in the offices of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, in accordance with the table annexed to the present contract (Annex 3). The drawings by lots shall take place on the third Wednesday of April in each year. The first drawing shall take place on that date beginning with the tenth year from the date of issue of the loan.

The numbers of the drawn bonds shall be published in four newspapers at the expense



HANKOW RAILWAY

of the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 4.—The bonds drawn by lots shall be paid in gold at their par value on the date on which fall due the coupons following the date of the drawing. Bonds presented for refunding must have attached all coupons still unpaid, and the amount of missing coupons will be deducted from the capital to be reimbursed. Interest on bonds will cease to accrue from the day set for reimbursement. Paid off bonds shall be classified and sent back by and at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine to the Imperial

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(*) The Edict was issued on the 24th May, 1899; vide Blue Book, China, No. 1 of 1900, p. 190.

Chinese Railway Company at Shanghai to be cancelled. If these bonds should be lost on the way, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall publish the numbers of the paid and lost bonds in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 5.—The Chinese Government denies itself the right, before the date fixed for the first amortisation, to fix a larger amortisation, or to refund the whole loan or to convert it. After that date it shall be free to refund the loan at whatsoever time it chooses before the dates of payment, and, the refunding made, all contracts shall be declared annulled.

Article 6.—Coupons and bonds shall be paid off in francs in the office or offices entrusted with the management of the loan.

Article 7.—Interest payment and the reimbursement of the bonds provided for in the present loan shall be guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of the authorization already granted by the Chinese Government, and in accord with it, the Imperial Chinese Railway Company declares that it makes a preferential assignment in favor of the payment of interest and of the capital of the present loan, and that it cedes and assigns in favor of said obligations all the net receipts of the line from Kai-feng Fu to Ho-nan Fu, after the regular payment of all expenses of management and operating, the whole as elsewhere indicated in an operating treaty concluded between the Imperial Chinese Railway Company and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, said treaty being annexed to and forming an integral part of the present contract. This assignment is made exclusively and irrevocably until complete redemption of the bonds of the present contract.

Article 8.—After auditing and noting the net receipts the Imperial Chinese Railway Company shall direct the Compagnie Générale de Chemins de Fer et de Tramways en Chine to deposit these funds in a bank to be chosen by common consent. This bank shall convert into gold, in accordance with the provisions stipulated in the contract made between the Bank, the Imperial Chinese Railway Company, and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and to the best advantage of the Imperial Chinese Railway Company, the sums paid it, and up to the full amount needed to ensure the service of the loan at the next semi-annual payment.

These deposits shall continue to be made until the sum needed for the integral service of the loan on the following date of payment has been realized in gold, and in such manner that said service is ensured at least three months before the date of the semi-annual payment

The bank designated for the receipt of these sums shall use them to the best advantage of the Imperial Chinese Railway Company. The account in which these sums shall be carried shall be charged twenty days before the date of payment with the sums needed or the service of the loan, interest, amortisation, money expenses, difference of exchange, and the commissions provided for by the present contract.

Article 9.—The bank in which shall be deposited the loan funds shall have the right without further authorization to levy on said funds on deposit the amount of the coupons to be paid during the construction period; but it shall advise the Director-General as these payments are made.

Article 10.—To ensure the guarantee just given to the bonds of the present contract, the Imperial Chinese Railway Company grants these bonds a special first-class guarantee on the railway from Kai-feng Fu to Ho-nan Fu, on its fixed and rolling stock and its receipts.

The special assignment is accepted in the name of the bondholders by the Compagnie Générale de Chemins de Fer et de Tramways en Chine. In case of non-fulfilment of the obligations assumed by the Imperial Chinese Railway Company in the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall have full power to take such action against said property as may result from this special assignment, and in that case the provisions of the operating treaty hereto annexed must always be strictly observed.

Article 11.—The preceding provisions do not conflict with the personal responsibility of the Chinese Government concerning the present loan, as said responsibility is specified in Article 7.

Consequently the Imperial Chinese Government pledges itself to make up the sum necessary for the service of the loan in gold, in case the sums derived from the net revenues of the line from Kai-feng Fu to Ho-nan Fu, and paid in by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this management by the Imperial Chinese Railway Company, to the bank chosen, should not produce after conversion into gold, and three months before the date of the following semi-annual payment, an amount sufficient to ensure said service.

In the case, and on demand made it, the Imperial Chinese Government shall be bound to put at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine sixty days before the following semi-annual payment falls due, in gold or in securities of sufficient amount to produce it in gold, the sum stated to it as being needed to make up said service.

Article 12.—From the sums derived from the deposits by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with that duty by the Imperial Chinese Railway Company, or from the supplementary sums paid by the Chinese Government, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall, in proper season, place at the disposal of the firms entrusted with the management of the loan the amounts necessary therefor according to the needs as determined during the preceding half-year.

Article 13.—The Imperial Chinese Government will pay to the firm entrusted with the management of the loan a commission of ¼ per cent., that is to say 25 francs for 10,000 francs on the amount of the coupons paid, and a commission of ⅛ per cent. on the amount of bonds drawn by lots or redeemed under anticipated refundings. The amount of this allowance shall be settled every six months; and, in case of insufficiency, it will be paid at once by the Imperial Chinese Government.

Article 14.—The Imperial Chinese Government binds itself to respect and cause to be respected the privilege provided for in favor of the bonds under Article 9 of the present conventions, and to hold free of all Chinese taxation whatsoever the bonds and coupons as well as all operations whatsoever connected with the management (service) of the loan. The preceding (provision) concerns the bonds and coupons of the loan and the operations relating to the management of the loan, and which shall be exempt from all taxation. But the taxes now in force in China, such as land rent and the taxes which the Chinese Government may impose hereafter, such as a stamp tax levied on the general commerce of China, the railway provided for in the present contract, and its traffic shall bear them. It being understood that no exceptional law shall be passed for the railway in question, and that the rule which shall be applied to it shall be that of all Chinese railways.

Article 15.—Coupons which have not been presented for cashing within five years after the date on which they fall due shall be lost by limitation (*prescrits*) in favor of the Imperial Chinese Government. The limit of time shall be of thirty years in case of redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to the heirs, in conformity with the inheritance laws in force in the country of the bondholder.

Payment of coupons and refunding of bonds shall take place in time of peace and in time of war to the holders, whether they be subjects of friendly states or of hostile ones. In case of loss, theft, or destruction of bonds of the present loan, the Imperial Chinese Government will authorize the Compagnie Générale de Chemins de Fer et de Tramways en Chine to replace the bonds by new ones at its own expense, whenever it shall have satisfactory evidence of the loss or destruction of the bonds and title-deeds (*des titres et des droits*) of the claimants.

Article 16.—The Imperial Chinese Government, through its representatives, shall at once take steps and shall furnish the necessary documents to secure the official listing (of the bonds) in the Bourses of the capitals of Europe.

Article 17.—The whole amount of the present loan, amounting to twenty-five millions of francs, represented by 500,000 bonds of 500 francs each, possession to be had from the date of payment, is bought outright (*pris ferme*) by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, at the price of 90 per cent., that is for the sum of twenty-two millions five hundred thousand francs.

If on the date of issue the bonds for the loan for the Hankow-Peking Railway should be quoted below 482.50 francs inclusive of the interest payable (*en tenant compte de la jouissance*) the two contracting parties would have the right to cancel the present contract.

Article 18.—The Compagnie Générale de Chemins de Fer et de Tramway en Chine will deposit the full amount of the proceeds of this purchase in the banks designated by it after agreement with the Director-General of the Imperial Chinese Railway Company, on delivery of the 50,000 bonds bought outright (*achetées fermes*).

The sum needed for the building of a fixed length of line shall be transferred to Shanghai, and deposited in such bank as is mutually agreed upon.

This bank shall convert into taels the sum in accordance with the instructions of the Director-General of the Imperial Chinese Railway Company. A sum on the available proceeds of the loan, at least one-tenth of the proceeds of the conversion into taels, shall be deposited in a bank in China, to be chosen by the Director-General of the Imperial Chinese Railway Company, and under his sole responsibility, and this deposit shall be applied to expenses at such times as the rates for the conversion of European values into taels may be unfavorable. It being well understood that the depository establishments shall only be required to deliver these sums under the conditions and limitations mentioned in Article 20 here below.

Article 19.—The construction work for the whole of the line shall be under the direction of the Chief Engineer chosen by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this work by the Imperial Chinese Railway Company and for its account.

The Chief Engineer shall prepare all studies, plans, tracings, estimates for the whole of the line; he shall direct the carrying out of all works and shall order the materials, tools, and supplies necessary to ensure the regular working of the line. Nevertheless all these operations must be submitted for the approval of the Director-General of the Imperial Chinese Railway Company.

As the line from Kai-feng Fu to Ho-nan Fu is a feeder (*confluent*) of the Luhan, the width of the rails and the general methods of operating must be the same as on the Luhan.

With the exception of the supplies of material and the expenses of all kinds duly authorized by an act signed by the Director-General of the Imperial Chinese Railway Company, and paid at Brussels, the Imperial Chinese Railway Company shall place at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, from the proceeds of the loan, the sums necessary to make, without any exceptions, all necessary payments for the carrying out of the works, the salaries of the staff under its orders, and in general for all expenses of whatsoever kind. But these payments must always be previously approved by the representatives of the Director-General.

After the signing of the present contract the Imperial Chinese Railway Company directs the Compagnie Générale de Chemins de Fer et de Tramways en Chine to choose an Engineer with experience in construction work, who shall direct the construction of the line and prepare studies, plans, tracings, and specifications for the whole line, and the whole shall

be submitted for the approval of the Director-General of the Imperial Chinese Railway Company. Said Chief Engineer shall be appointed, on recommendation of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, by the Director-General of the Imperial Chinese Railway Company, to whom he is directly responsible.

The Director-General of Chinese Railways shall fix the amount of his salary, after agreement with the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

The Chief Engineer shall prepare a tabulated plan of the European staff necessary for the building, and shall submit it for the approval of the Director-General of the Imperial Chinese Railway Company. This staff shall be engaged by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which shall put it under the order of the Chief Engineer.

As regards the Chinese staff, whether technical or other, the Director-General of the Imperial Chinese Railway Company reserves to himself the right to choose it, and to put it under the orders of the Chief Engineer. No Chinese or European employee shall be engaged without the assent of the Director-General of the Imperial Chinese Railway Company. It is understood that Chinese subjects who have made special studies, or who have acquired sufficient practical knowledge, may be presented by the Director-General of the Imperial Chinese Railway Company to the Chief Engineer, who shall employ them on the works under the same conditions as European employees. As to the technical service, the Chinese staff as well as the European staff shall be under the direct orders of the Chief Engineer. But the Director-General reserves the right to demand the instant dismissal of any agent of whatever nationality on condition that the demand for dismissal is based on serious reasons.

The Director-General likewise reserves the right to depute on the works a special representative with full powers. The salary of said representative, as also the running expenses of the head office at Shanghai, shall devolve on the Kai-feng Fu to Ho-nan Fu railway concern.

Orders for materials, tools, and furniture for the construction of the line, and for its orderly working, shall be submitted through the Chief Engineer to the Director-General for approval.

Orders as well as contracts for work shall be drawn up, after mutual agreement, by the Chief Engineer and the representative of the Director-General.

Statements of the sums paid for supplies of materials and expenditures of every description settled in Europe shall be sent with all vouchers and explanatory documents to the Imperial Chinese Railway Company every three months.

Every month the Chief Engineer, in agreement with the Imperial Chinese Railway Company, shall request the bank in which are deposited the loan funds, to pay the amount necessary for the general expenses of the undertaking during the month following, to an agent chosen by the Director-General of the Imperial Chinese Railway, and against receipt duly signed by the latter and under the responsibility of the Director-General of the Imperial Chinese Railway Company. This agent shall not surrender any of the funds except under the signature of both the Chief Engineer and the representative of the Director-General.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall not therefore be obliged to meet any expense for the building out of its own money.

Said Company shall endeavour to finish the work on the line within two years from the date on which the railway from Hankow to Peking shall be opened to traffic as far as the Yellow River, because materials will then be easily transported.

It is well understood that the Imperial Chinese Railway Company will not pay the expenses of the office in Brussels, except the necessary expenses for the studies, orders, receipt of materials, living of staff; consequently the personal expenses of the directors, allowances (indemnities), etc., will continue to be chargeable to the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 20.—The price paid for the above mentioned bonds being exclusively assigned to the building of the railway from Kai-feng Fu to Ho-nan Fu, the Compagnie Générale de Chemins de Fer et de Tramways en Chine, or the bank having received the deposits, would have the right not to give up these funds in case one of the deposits should not have been applied as provided for, and also in case the delegates of the Compagnie Générale de Chemins de Fer et de Tramways en Chine were not enabled by the Imperial Chinese Railway Company to continue the direction of the construction works.

The balance on hand, if any should exist after the completion of the works, shall be held subject to the order of the Imperial Chinese Railway Company. After the completion of the works and the organization of traffic, if the funds of the issue should still show a (credit) balance, said balance shall be paid in full to the Imperial Chinese Railway Company, who shall remit it to the Chinese Government.

If the loan provided for in the present contract should not be enough to finish the line or to organize traffic, the Compagnie Générale de Chemins de Fer et de Tramways en Chine is authorized by the present (contract) to make a further loan on the same terms as in the present contract without being obliged to make a new contract.

Article 21.—Within nine months following the date of the signing of the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall buy outright from the 50,000 bonds a first lot for 12,500,000 francs at the price of 90 per cent. for the purpose of building the first portion of the line. The balance of the issue, or 12,500,000 francs, for the building of the second section of the line, shall be taken at the same price and in one or two instalments by (public) subscription or otherwise. But it remains well understood that the expense of issuing the loan falls on the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

If the Compagnie Générale de Chemins de Fer et de Tramways en Chine should begin simultaneously the building of both sections of the road on either side of the Luhan line, it shall have the right to make but one issue for the whole loan.

Article 22.—Preliminary studies of the line after the signing of the present contract are at the expense of the Imperial Chinese Railway Company, and are to be provided for out of the loan funds. Said studies of the line shall be provided for from the revenues derived from the loan, and they shall begin on the section running from Kai-feng Fu to the junction with the Hankow-Peking line. They shall afterwards be made over the other sections. From the Luhan junction to Ho-nan Fu will constitute the second section.

The proceeds from the first purchase of bonds shall be applied to the building of the portion of line from Kai-feng Fu to the Luhan junction.

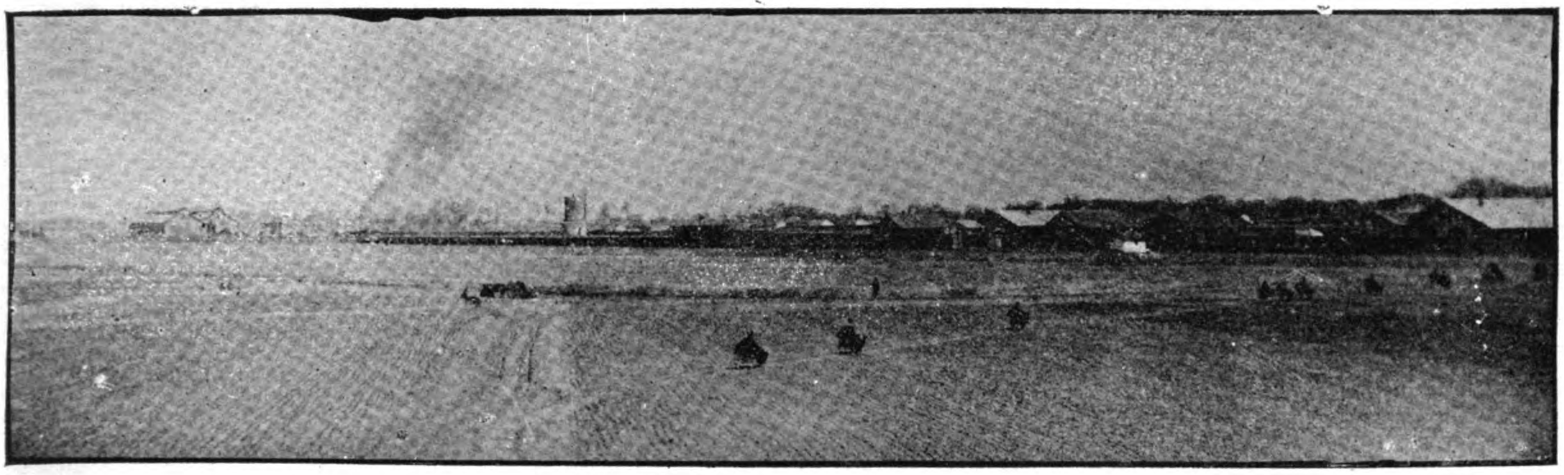
The preliminary studies shall begin within nine months from the date of signing the present contract.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall deposit one million francs to the order of the Imperial Chinese Railway Company. This sum is considered as an advance on the loan for the railway from Kai-feng Fu, to Ho-nan Fu and is to be specially devoted to expenses for study of the line.

The depository bank shall not surrender this sum except in accordance with the provisions of Article 20 of the present contract.

This advance shall produce an annual 6 per cent. interest without rate of issue, but it shall be refunded with the proceeds of the first sale of 12,500,000 francs, which must be issued within nine months from the signing of the present ontract; a portion of the proceeds of this sale will be issued to refund the advance first made.

Article 23.—Should the Compagnie Générale de Chemins de Fer et de Tramways en Chine finish satisfactorily the work for the railway from Kai-feng Fu to Ho-nan Fu, complying strictly with all the provisions of the present contract, and should the Chinese Government decide to extend the railway from Ho-nan Fu



PEKING-HANKOW'S CENTRAL SHOPS AND HEADQUARTERS AT CHANGSINTIEN

to Si-ngan Fu, the Director-General of the Imperial Chinese Railway Company agrees to come to an understanding preferably with, and to grant an option for the loan necessary for said undertaking to, the Compagnie Générale de Chemins de Fer et de Tramways en Chine in conformity with the provisions and conditions of the present contract.

Article 24.—The present contract shall only be binding on the Compagnie Générale de Chemins de Fer et de Tramways en Chine if it is assumed that, exclusive of what may be furnished and produced in China, and bought at the same prices as the European product delivered in China, the total amount of materials and supplies necessary for the building and operating of the railway from Kai-feng Fu to Ho-nan Fu will be asked of and ordered from the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which will fill these orders under the best possible terms.

The carrying out of this provision of this contract by the Imperial Chinese Railway Company will be proven by the orders for materials for each of the sections of line undertaken.

Orders from the Compagnie Générale de Chemins de Fer et de Tramways en Chine will be free from all duties or from likin on importation or in transit across Chinese territory.

If proof of the granting of this franchise is not forthcoming before the end of the month following the date on which the Belgian Government should inform the Compagnie Générale de Chemins de Fer et de Tramways en Chine that it has received notification concerning Article 28, said Company reserves the right not to consider itself bound.

It reserves the same right if extraordinary events should take place, such as a war, or if there were absolute impossibility to secure subscribers for the bonds.

Should on its side the Compagnie Générale de Chemins de Fer et de Tramways en Chine not fulfil within the given delays the obligations it has assumed by the present contract, it shall become annulled. The Imperial Chinese Railway Company would be at liberty to enter into contract with whosoever it chose, and to give up the service of the Chief Engineer.

It is expressly agreed that the works and mines under the control of H. E. Sheng Kung Pao shall have a preferential right for all orders necessary for the building and operating of the railway which is the object of the present contract. The word preference applies to equality of specifications and prices, including transportation, as if the orders had to be filled abroad and delivered in China.

All orders made in China shall be free of duties and of likin on Chinese territory.

Article 25.—In case of disagreement between the Compagnie Générale de Chemins de Fer et de Tramways en Chine or its delegates and the Imperial Chinese Government or the Imperial Chinese Railway Company, such conflicts or disagreements shall be settled by the decision of a member of the Ministry of Foreign Affairs and the Minister of Belgium in China. In case of non-agreement the third arbitrator shall be the Dean of the Diplomatic Body at Peking.

Article 26.—Should the Minister of Belgium request the Chinese Minister of Foreign Affairs, the latter shall be bound to give cognisance of the title (*notifier le titre*) to the Minister of the foreign country mentioned to him as subscribing to the issue of bonds. The present contract is drawn up in triplicate, one copy for the Chinese Government, one for the Imperial Chinese Railway Company, and the third for the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

In case of doubt or disagreement, the French text alone shall be authoritative in interpreting the present contract.

The present contract shall be submitted through the proper channel for the Imperial Sanction, and when that shall have been obtained, the Minister of Foreign Affairs shall notify, by official despatch, the Representative of Belgium at Peking, and in case of necessity, the Representative at Peking of the foreign country to whom the title shall be notified.

Article 28.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine has been organized at Brussels the 26th March, 1900, under Belgian law (*régime belge*) and with Belgian capital.

The Imperial Chinese Railway Company only recognizes for the purposes of the present contract the above-mentioned contracting Belgian Company, which shall never have the right to transfer the present contract to other nations nor to persons of another nationality than Belgian.

Article 29.—The present contract includes the right to build little branch lines from the line from Kai-feng Fu to Ho-nan Fu for the purpose of securing traffic and establishing useful relations. These branch lines shall only be built after agreement with the Director-General and the Governor of Ho-nan and in accordance with plans approved by them.

Agreement between China and Germany in regard to the Railway and Mining Concession in Shantung.

I. The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province via Wei-hsien, Tsinchow, Pashan, Tsechuen, and Suiping. The second line will connect Kiaochow with Chinchow whence an extension will be constructed to Tsinan through Laiwu-hsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II. In order to carry out the above-mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III. All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided pro rata between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung, Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV. The Chinese Government shall allow German subjects to hold and develop mining property for a distance of thirty li from each side of these railways, and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Laiwuhsien, etc. Chinese capital may be invested in these operations, and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities, and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business, the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

This convention requires the sanction of His Majesty the Emperor of China and His Majesty the Emperor of Germany. When the sanction of His Majesty the Emperor of China reaches Berlin the Agreement approved by His Majesty the Emperor of Germany shall be handed to the Chinese Ambassador. When the final draft is agreed to by both parties four clean copies of it shall be made, two in Chinese and two in German, which shall be duly signed by the Chinese and German Minister at Berlin and Peking. Each Power shall retain one Chinese copy and one German copy, and the Agreement shall be faithfully observed on either side.

Dated the fourteenth day of the second moon of the twenty-fourth year of Kuang-Hsu (6th March, 1898.)

CANTON-KOWLOON RAILWAY.

Agreement between the Wai-Wu-Pu (Board of Foreign Affairs of the Chinese Government) and the British and Chinese Corporation Limited, for the Issue and Regulation of a Loan for the Construction of a Railway from the City of Canton to the Boundary of the Kowloon Leased Territory under British Control (hereinafter called the Railway).

This Agreement is made at Peking on the 23rd day of the first month of the 33rd year of Kwang Hsu, corresponding to the 7th day of March 1907, and the contracting parties are:—

The Wai-Wu-Pu acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

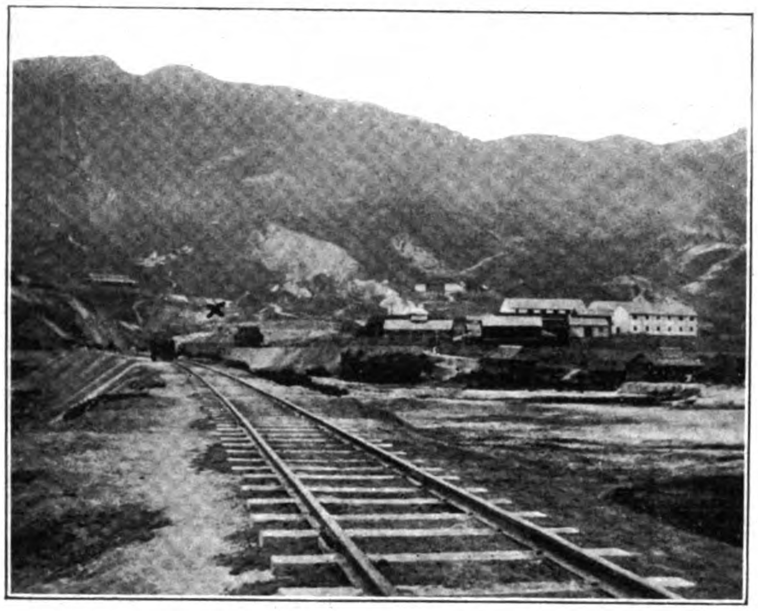
Whereas a preliminary agreement was made on the 28th March, 1899, between H. E. Sheng, Director-General of the Imperial Chinese Railway Administration, acting under the authority of the Tsung-Li Yamen, of the one part, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hongkong and Shanghai Banking Corporation, representing as Joint Agents the Corporation, of the other part, and it was part of the objects thereof that the terms of another preliminary agreement signed by the same contracting parties on the 13th May, 1898, should be thereby adopted as a preliminary agreement for the construction and working of a Railway from the city of Canton to the boundary of the Kowloon leased territory under British control, subject, however, as far as might be practicable, to the terms and conditions thereafter agreed to in the final contract for the Shanghai-Nanking Railway when signed and ratified.

Now it is hereby agreed by and between the parties hereto as follows:—

Article 1.—The Corporation agrees to issue, on behalf of the Imperial Chinese Government, a sterling loan (hereinafter referred to as "the loan") for the amount of £1,500,000 on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire amount, similar to the bonds of the Shanghai-Nanking Railway, with the Railway as first mortgage security therefor. The loan shall be in one issue and the price agreed upon is 94 per cent. of the nominal value, subject to the other provisions of this Article as hereinafter stated. The

interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, payable half-yearly, on the first day of June and the first day of December, and shall be calculated from the date of their sale to the public.

The loan shall be issued to the public as soon as possible after signing this Agreement, but, if at the date of signature thereof, owing to an unfavorable state of the market rendering the issue of the loan and the payment of its proceeds to the Viceroy of Canton impossible on the terms above named, then in such case the Corporation shall thereafter,



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VIEW OF KOWLOON END OF HONGKONG KOWLOON SECTION WITH WORKING PLANT

at such time as the Chinese Government may decide within a period not exceeding eight (8) months, issue the loan and pay the proceeds thereof to the Viceroy, deducting and retaining six (6) points from the rate at which the loan is actually issued to the public, whatever that rate may be (*i. e.* if the issue price be 101 the Viceroy will receive 95, and so on).

Subject to the provisions of Article 16, the duration of the loan is fixed at thirty (30) years commencing from the date of the signature of this Agreement, but no interest shall be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London, in consultation with the Corporation, may sanction.

It is understood that the Chinese Government may hereafter, in its discretion, appoint a Director-General of the Railway, upon whom, in such case, will devolve all the powers, functions and responsibility herein attributed to the Viceroy of Canton (hereinafter called the Viceroy).

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the Railway, and in paying interest on the loan during the course of construction.

The Railway, being the first mortgage security for the loan, shall be built and equipped under the direction of the Viceroy, in accordance with the provisions of Article 6 hereinafter, and shall be built as economically as possible in accordance with the best modern system.

It is understood that the Viceroy will secure all the necessary land for the Railway, and will give the necessary instructions to expedite and facilitate the work of construction. The Railway will be built in the first instance as a single line, but provision will be made, with the approval of the Viceroy and wherever necessary to meet traffic requirements, for the eventual construction of a double line.

If, during the time of construction, the proceeds of the loan, together with the accrued interest thereon, payable by the Corporation, should, after the deduction of the sums necessary for the payments of interest on the loan, be insufficient to complete the construction of the Railway, the amount of the deficiency shall either be provided from the Chinese Government's own resources or by a supplementary loan to be hereafter issued by the Corporation, the interest and other conditions of which supplementary loan shall be arranged when the time arrives, having due regard to the conditions of the money market.

When the Railway is complete, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government either to redeem the bonds in accordance with the terms of this Agreement, as hereinafter stated, or to be placed on deposit with the Hongkong and Shanghai Banking Corporation, for the purpose of paying interest on the loan, or for other purposes beneficial to the Railway, in regard to which the Viceroy will communicate in due course with the Corporation.

In all matters relating to the construction of the Railway it is expressly agreed that particular heed shall be paid to the opinions and habits of the Chinese people, and that, when practicable, Chinese shall be employed in positions of trust and responsibility in connection with the Railway.

In regard to earthwork, or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese, under the sanction of the Head Office, and the work itself shall be carried out in accordance with plans and specifications of the Engineer-in-Chief and under his supervision.

Detailed plans and estimates of cost, whether of the respective sections of the Railway, or of any alterations of the same, are to be submitted for the approval of the Viceroy, by the Engineer-in-Chief through the Managing Director.

Article 3.—The loan shall be secured by mortgage, declared to be now entered into in equity by virtue of this Agreement, and shall, as soon as possible hereafter, be secured by a specific and legal first mortgage in favor of the Corporation upon all lands, materials, rolling stock, buildings, property and premises, of every description purchased or to be purchased for the Railway, and on the Railway itself, as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as equivalent in purport and effect to a mortgage, customarily executed and delivered in England to a Trustee, for the purpose of securing loans and bond issues upon Railway properties in foreign countries.

Article 4.—It is hereby agreed that in six (6) months after this Agreement is signed, the Corporation shall provide the amount necessary to proceed with the detailed survey of the Railway, and for preliminary construction work if necessary, whether this amount comes from the sale or hypothecation of the bonds, or from advances made, provided that bonds for the required amount shall have been executed and delivered to the Corporation. If, after expiration of eight (8) months from the date of ratification hereof, the work of construction shall not have been begun on the Railway, this Agreement is to become null and void, but if failure to commence construction be due to any cause of *force majeure*, a reasonable extension of this time-limit shall be arranged between the Viceroy and the Corporation.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and the payments of contracts there, or for repayment of advances, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Viceroy through the Managing Director, as being actually required for the construction of any particular section of the Railway, may be ordered by the Viceroy, after consideration, to be transferred to Hongkong to be kept in the Hongkong and Shanghai Bank, and place to the credit of the construction account of the Railway for the exclusive purpose of constructing the Railway in the manner herein provided for under the supervision of the Head Office and the Viceroy.

On each occasion of a remittance being made to China, the amount realized in Sycee will be reported to the Viceroy, and any portion which may not be required shall be placed at interest. Similarly, the balance in England shall be placed at interest, to be allowed at the usual rate.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Head Office for report to the Viceroy, for the information of the Waiwupu, and for his further report to the Board of Revenue, and the Board of Communications, for record therein, after such accounts have been approved and signed by him.

Article 5.—As to the form of the bond, it is to be agreed upon by the Viceroy, or by the Chinese Minister in London and the Corporation, as soon as possible after the signature of this Agreement, but if, hereafter, the money markets in London or other countries require any modification of the form of the bond, except in anything that affects the amount of the loan and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Viceroy for the approval of the Waiwupu.

The bonds are to be engraved entirely in the English language, and shall bear the facsimile of the signature of the Viceroy and of his seal of office, in order to dispense with the necessity of signing them all in person, but the Chinese Minister in London shall, previous

to the issue of any Bonds, put his seal upon each bond with a facsimile of his signature, as a proof that the issue and sale of the bonds are duly authorized and binding upon the Chinese Government.

Such bonds are to be numbered consecutively; and as many bonds as may be needed are to be properly engraved under the supervision of the Corporation; and after they are sealed by the Chinese Minister in London, as heretofore provided, are to be countersigned by the Corporation.

All expenses for the engraving, safe deposit, and sale of the bonds are to be borne by the Corporation.

Article 6.—When the work of construction is ready to begin, the Viceroy will establish a Head Office at Canton for the construction and management of the Railway. This Office will be under the direction of a Chinese Managing Director (appointed by the Viceroy) with whom will be associated a British Engineer-in-Chief, and a British Chief Accountant. These British employés shall be proposed and certified as competent for their posts, by the Corporation, and shall be approved by the Viceroy; if their services should prove unsatisfactory to the Viceroy, he shall request the Corporation to dispense with their services and to nominate their successors, and, in the event of the Corporation desiring to remove them for good cause, it shall do so in consultation with the Viceroy. It is understood that the duties performed by these employés are intended to promote the mutual interests of the Chinese Government and the bondholders respeetively, and it is therefore agreed that all cases of difference arising therefrom shall be referred for amicable adjustment between the Viceroy and the Representative of the Corporation. The salaries and other terms of agreement of the Engineer-in-Chief and the Chief Accountant shall be proposed by the Corporation, for approval by the Viceroy; and the amount of their salaries, etc., shall be paid out of the general accounts of the Railway.

For all important technical appointments on the Railway Staff, Europeans of experience and ability shall be engaged, and wherever competent Chinese are available they shall also be employed. All such appointments shall be made, and their functions defined, by the Managing Director and the Engineer-in-Chief in consultation, and shall be submitted for the Viceroy's approval; similar procedure shall be followed in the case of Europeans employed in the Chief Accountant's department. In the event of the misconduct, or the incompetency of European employés, their services may be dispensed with by the Managing Director, after consultation with the Engineer-in-Chief, and subject to the sanction of the Viceroy. The form of agreements made with European employés shall conform to the usual practice.

The accounts of the receipts and the disbursements of the Railway's construction and operation shall be kept in Chinese and English in the Department of the Chief Accountant, whose duty it shall be to organize and supervise the same, and to report thereon for the information of the Viceroy through the Managing Director, and of the Corporation. All receipts, and payments, shall be certified by the Chief Accountant and authorized by the Managing Director.

For the general technical staff of the Railway the necessary arrangements shall be made by the Managing Director in consultation with the Engineer-in-Chief, and reported to the Viceroy in due course.

The duties of the Engineer-in-Chief shall consist in the efficient and economical construction and maintenance of the Railway, and the general supervision thereof in consultation with the Managing Director. He shall always give courteous consideration to the wishes and instructions of the Viceroy, whether conveyed directly or through the Managing Director, and shall always comply therewith, having at the same time due regard to the efficient construction and maintenance of the Railway.

A school for the education of Chinese in railway matters shall be established by the Managing Director, subject to the approval of the Viceroy.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the Railway, its property and equipment, and the mortgage is to be executed by a deed in the form contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this Railway is in fact a Chinese property.

All land that may be required along the whole course of the Railway within survey limits, and for the necessary sidings, stations, repairing shops and car sheds, to be provided for in accordance with the detailed plans now made, or hereafter to be made by the Engineer-in-Chief, and approved by the Viceroy, shall be acquired by the Viceroy at the actual cost of the land, and shall be paid for out of the proceeds of the loan.

The title deeds of the land for the Railway and all other lands shall be free from all encumbrances and entanglements, and shall, from time to time, as soon as secured, be registered in the name of the Railway.

Notices of all purchases of lands for the Railway within the survey limit (together with corresponding title deeds) are to be transmitted by the Railway Head Office under the direction of the Viceroy to the local Agent of the Corporation for record and preservation in its office in Hongkong, and for the purpose of establishing the first mortgage security until the time when the same are to be returned to the Viceroy, as hereinafter in this Article provided.

All lands, the title deeds of which are lodged with the Corporation as part of the first mortgage security of the loan, shall not be disposed of in any way by hire, lease, or sale, to any party, for any purpose whatsoever, without the written consent of the Viceroy, except only in the event of the Imperial Chinese Government failing to pay the interest or principal of the bonds, and then in accordance with the powers in the deed of mortgage.

The lands thus bought shall be free from all encumbrances, liabilities, and entanglements, and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Hongkong Office of the Corporation, and are to be held by it as a first mortgage security for the bonds under the provisions of this Agreement, until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Viceroy, except only in the case of the Imperial Chinese Government's failure to pay the interest or principal of the bonds and consequent realization under the powers of the mortgage security.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, no part of the lands comprised in the mortgage security or the Railway with its appurtenances shall be transferred or given to another party, or shall be injured, and that the rights of the first mortgage shall not be in any way impaired, unless with the consent in writing of the Corporation, which shall only be given if in the opinion of the Corporation the interests of the bondholders will not be affected.

And further, that until the interest and principal of the loan and all the indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Viceroy shall not again mortgage the above properties to another party whether Chinese or foreign.

During the period of this Agreement no special taxes shall be levied by the Chinese Government on the Railway, its appurtenances, or earnings: but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the Railway and its operations.

Article 8.—It is agreed that if the half-yearly interest on the bonds is not paid on any due date thereof, or if the principal of the loan be not paid in accordance with the amortisation schedule hereto attached, the whole Railway with all its appurtenances herein mortgaged to the Corporation for the bondholders, shall be handed over to the Corporation to be dealt with by it according to law in such manner as will ensure the proper protection of the interests of the bondholders, provided, however, that if the failure to make payment at any one date be due to causes beyond the control of the Chinese Government, and if the Viceroy request the Corporation to postpone the taking over of the Railway for a reasonable period of grace, the question shall be amicably discussed and decided between the Viceroy and the Representative of the Corporation. When the whole loan and the interest due thereon and all the indebtedness shall have been paid off, the Railway with all its appurtenances in good working condition shall revert to the possession and management of the Chinese Government according to the provisions of this Agreement.

Article 9.—As remuneration for all services rendered by the Corporation, during construction of the Railway, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed, but not later than eighteen (18) months after commencement of construction, and the other half upon completion of the line. This amount shall be regarded as a commutation of all commissions to which the Corporation and its Agents would properly be entitled, and of payments of all services rendered in the construction and equipment of the Railway, in respect of the present loan; but in the event of any branch lines being decided upon by the Chinese Government for construction in connection with this Railway, and if the Chinese Government, decide to build the same by issue of a foreign loan and not from its own resources, then the Corporation shall have the first option of tendering for such loan, and a further payment proportionate to the amount of such supplementary loan, and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission, the Viceroy is entitled to require the Corporation to superintend the purchase of all materials required for the construction and equipment of the Railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities, goods of British manufacture shall be given preference over other goods of foreign origin. Invoices and inspector's certificates are to be submitted to the Viceroy.

With a view to encouraging Chinese industries, Chinese Government and other materials are to be preferred, provided price and quality are suitable.

No commission shall be allowed to the Corporation on the purchase of materials except as above provided. All trade discounts or rebates, if any, are, during construction, to go to the construction account, and, after completion, to the credit of the Railway.

Article 10.—In the construction of the line, in the working of the Railway and in the performance of the different kinds of business connected with the Railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the Railway while under construction or when in operation, and all the properties of the Railway, as well as Chinese and foreigners employed thereon, are to enjoy the utmost protection from the local officials.

The Railway may maintain a force of Chinese police with Chinese officers, their wages and maintenance to be wholly defrayed as part of the cost of the construction and maintenance of the Railway. In the event of the Railway requiring further protection by the military forces of the Imperial or Provincial Governments, the same will be duly applied for by the Head Office and promptly afforded, it being understood that such military forces shall be maintained at the expense of the Government or the Province.

Article 11.—All receipts and earnings of the Railway shall be regularly paid into the Railway's account with the Hongkong and Shanghai Banking Corporation, and on such funds, whether on daily balance or on fixed deposit, the Bank's usual rate of interest shall be allowed.

All expenses of working and maintaining the line shall be paid from the receipts and earnings, and any remainder thereof shall be charged with the service of the loan. If, after payment of these expenses, and making due provision for payment of interest at 5 per cent. per annum on the bonds, and for repayments of principal due in accordance with the amortisation schedule hereto attached, there remain surplus funds unappropriated and properly available for other purposes, such funds shall be at the disposal of the Chinese Government to be used in such manner as the Viceroy may decide, provided always that after completion and opening of the line to traffic the amount sufficient for regular payments of interest and repayments of principal shall be deducted from such surplus funds, if any, and shall be deposited with the Hongkong and Shanghai Banking Corporation six months before the date at which such payments fall due.

In the event of there being no surplus funds available as aforesaid from the earnings of the Railway, the amount required for payments of interest and repayments of principal shall be provided in accordance with the conditions of Article 14 hereinafter.

Article 12.—The Corporation are hereby appointed Trustees for the bondholders, and in any future negotiations respecting these loans, or matters arising in connection therewith, which may take place between the Viceroy and the Corporation, the Corporation shall be taken as representing the bondholders, and as such empowered to act on their behalf. In view of the fact that the Corporation's responsibility to the bondholders continues after construction, whereas, as stated in Article 9, its commuted commission for services rendered is limited to the period of construction, and the Corporation is not thereunder entitled to any further remuneration during the period of the loan, the Corporation shall receive as remuneration for its services and responsibility in acting as Trustees for the bondholders the sum of £1,000 per annum, such remuneration to commence from the date of issue of this Loan and to terminate upon its complete redemption.

Article 13.—All materials of any kind that are required for the construction and working of the Railway, whether imported from abroad or from the provinces to the scene of the work, shall be exempted from likin so long as such exemption remains in force in respect of other Chinese Railways. The bonds of this loan, together with their coupons and the income of the Railway, shall be free from imposts of any kind by the Government of China.

Article 14.—It is agreed that during the time of the construction of the Railway, the interest on the bonds and on any advances made by the Corporation is to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings derived by the Chinese Government from the working of any sections of the Railway as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the Railway is wholly completed, the interest on the bonds is to be paid, from the income or earnings of the Railway received by the Chinese Government, every half-year on the first day of June and the first day of December.

It is hereby agreed that the amount required for the payment of interest and the repayment of principal, together with a sum of one-quarter of one per cent. on such amounts, to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed Agents for the entire service of repaying the loan, shall be paid to them fourteen (14) days before the due dates in Hongkong or in Canton (at the option of the Viceroy when settling exchange) in local currency sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation, the Viceroy having the option of settling exchange at any date or dates within six (6) months previous to any due date for the repayment of interest and principal.

The Chinese Government unconditionally undertakes, and hereby promises, to pay the principal of the loan and the interest on the loan on the due dates fixed therefor. If, at any time, the earnings of the Railway together with funds available from the proceeds of the loan, are not sufficient to meet the interest on the bonds and the repayment of capital in accordance with the amortisation schedule hereto attached, the Viceroy shall devise means for supplying the deficiency; and should his inability to do so appear probable, he shall memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due dates of such payments in the hands of the Hongkong and Shanghai Banking Corporation.

Article 15.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to its successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement to any other nation, or people of any other nationality, except British or Chinese. Similarly, the Chinese Government's rights and authority under this Agreement shall not be transferred to persons of other nationality.

It is further understood that the Chinese Government will not build another line competing with this Railway to its detriment.

Article 16.—The term of the loan, as stated in Article 1, shall be thirty (30) years. Repayment of principal shall commence after the expiry of 12½ years from the date of the loan and shall be completed in 17½ years by yearly payments to the Hongkong and Shanghai Banking Corporation as Agents for the service of the loan, acting for the Corporation under the terms of this Agreement, in accordance with the amortisation schedule hereto attached.

If at any time after the expiry of 12½ years from the date of the loan, the Imperial Chinese Government should wish to redeem the outstanding amount of the loan, or any portion of it, not yet due under the provisions of the amortisation schedule hereto attached, not less than six months' notice shall be given in writing by the Viceroy to the Representative of the Corporation, declaring the number of additional bonds so required to be redeemed, whereupon the Representative of the Corporation shall immediately proceed to make such arrangements as may be necessary and usual for the redemption of the number of bonds specified, which, when duly redeemed after payment by the Imperial Chinese Government of the proper amount due thereon, shall be cancelled and delivered to the Viceroy.

All bonds thus redeemed, in excess of the amount specified in the amortisation schedule hereto attached, before the expiry of 25 years from the date of the loan, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay for £100), but, after 25 years, bonds may be redeemed over and above the amounts specified in the schedule without premium, upon notice being given in the manner above specified.

As soon as the loan has been completely redeemed, this Agreement shall become null and void and the mortgage shall be cancelled.

Article 17.—If, during construction, any proceeds of the sale of the bonds are lying unused and bearing interest on their deposit whilst the construction of the Railway is going on, such interest is to be credited to the general account of the Railway in order that the Railway may enjoy the full advantage thereof.

It is also agreed that, if the Corporation shall think it expedient before the sale of any of the bonds to advance any money for the work, such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 18.—The junction of the sections of the Railway from Canton to the boundary of the Kowloon leased territory under British control, and from the said boundary to the port of Kowloon respectively, and the subsequent joint working of the two sections, shall be arranged by agreement between the Viceroy of Canton and the Governor of Hongkong.

Article 19.—This Agreement is signed under the authority of an Imperial Edict dated ----, which has been officially communicated to the British Minister in Peking by the Wai-wu-pu.

Article 20.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Viceroy, one by the Wai-wu-pu, one by the Board of Communications, one by the British Minister, and one by the Corporation; and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard

Signed at Peking by the contracting parties, this 23rd day of the first month of the 33rd year of the Emperor Kwang Hsu, being the 7th day of March, 1907.

Seal of Wai-wu-pu.
Signature of TANG SHAO-YI.

Witnessed by Canton Viceroy's Delegates, TAO-TAIS KUNG and HU.

For the British and Chinese Corporation,
J. O. P. BLAND.

Representative in China.

Witnessed by—

MESSRS. JARDINE, MATHESON & Co., and H. S. GARDNER, Agent, H. & Sh. Bkg. Corporation.

Joint Agents, B. & C. Corporation.

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for August, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $14,000,000 i $250,000	$2 005,774	30-6-08	Interim of £2 for first half year—@ ex 1|9⅞=$21.942.	6	$750 ex div. £80
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3|6) for 1903	...	$50
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	9	$220
North China Insurance Co., Ld.	1963	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Interim of 7|6 ex 2|5¾ for 1907	6	Tls. 78 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	6	$745
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-07	$12 and bonus $3 for 1906	9	$167 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $346,097 f $13,802	$372,432	31-12-07	$6 and bonus $2 for 1906	8½	$92½ buyers
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	$1,323,941	$428,047	31-12-07	$27 for 1906	8½	$315 buyers
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$1.035	31-12-07	$1 for 1906	....	$15
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10½	$38
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $587,500 f $ 81,766 $ 17,655	$17,755	30-6-08	$1½ for first half year ending 30-6-08	8¼	$27½ sales
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882 m	£600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,75	31-12-07	6|- for 1907 on pref. shares only at ex. 1|9 11|16, $3.54	5¾	$35 $20
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Interim of Tls. 1¾ for % 1908	7½ 7	Tls. 47 sellers Tls. 51 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Final of 1|- (Coupon No. 10) making in all 3|- for 1907 and Interim of 1|- for % 1908 (Coupon No. 11)	6	44|-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$25 $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 140,000 d Tls. 609,255 e Tls. 100,000 i Tls. 116,000 q Tls. 17,142	Tls. 6,869	31-12-07	Final of Tls. 2½ making Tls. 5 for 1907	11	Tls. 45 buyers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $32,538 e $450,000 r $56,848	Dr. $279,371	31-12-07	$8 for year ending 31-12-06	....	$130
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,132	31-12-07	$3 for 1897	....	$ 22
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 4. (8%) for year ending 31-8-06	....	Tls. 92½ sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £12,289	£11,556	28-2-07	Interim of 1|6 (Coupon No. 10) for a|c 1908	7¾	Tls. 15½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1|-=48 cents	....	$7¼
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	....	$13
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	7¾	$45
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $76,199 v $200 000	$384,847	30-6-08	Interim of $4 for % 1908	8	$100 ex div.
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Final of Tls. 2½ making in all Tls. 5 for year end. 30 4 08	6	Tls. 85 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Interim of Tls. 4 for % 1908	10	Tls. 172½ buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 101 sales
Astor House Hotel Co., Ld.	1901	$750,000	4) 30 000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	....	$18 sellers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	...	$12 sellers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $7,000	$252,	31-12-07	Final of $3½ making $7½ for 1907	9½	$80
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$36,915	31-12-07	Interim of $3½ for a|c 1908	7½	$94
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7	$10 sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1⅞ for 1907	7	$27
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78 000	Tls. 50	Tls. 50	Tls. 1,523.045 / e Tls. 170,000	Tls. 107,547	31-12-07	Interim of Tls. 3 for % 1908	7	Tls. 116½ sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	6½	Tls. 90.
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Interim of $2 for % 1907	9	$46
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 / Tls. 45,939	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4	Tls. 63 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	4½	$11
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 67 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 85 sellers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 242½ sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,500	£648	31-12-07	1s. 10½d. for 1907=$1 037	13½	$7½ sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25.000	Nil.	31-12-07	$1.20 for 1907	11½	$10½
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6½
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3.593	31-12-07	80 cents for 1907	8½	$9½ buyers
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 / $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	6½	$20
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Final of 75 cents making in all $1¼ for 1907	12	$10½ sales
H. Price & Co. Ld	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12 buyers
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10½	$19 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	7½	$16½ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,578	31-12-07	Interim of $4 for % 1908	8	$231 ex div.
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	none	$8,191	31-12-07	Interim of $1 for % 1908	8	$25
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for second quarter	6	Tls. 562½ buyers
Peak Tramways Co., Ld. / Do. (New)	1907	$750.000	25,000 / 50,000	$10 / $10	$10 / $1	$5.000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 / 4	$14 / $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	6½	Tls. 113½ buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / u Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	14½	Tls. 95
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 400 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $90,237	31-8-07	None	....	$23 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$478	31-5-07	40 cents for year ending 30-5-07	6½	$6
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 100
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	4½	$10½
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders' shares for year ending 31-5-07	6½	$13
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	e $300,000 / $25.000	$6,438	31-12-07	Final of 3% = 30 cents making in all 60 cents for year ending 31-12-07	6½	$9½ buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg 31 7 07.	....	$150 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$4 buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government. Kuping Tls. 5,000,000.
19 12.000 issued only.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold cents 50 for year ended 30th June 1907	May 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500 000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		T.s. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co, Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	——	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros, Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	——	—
Oriental Ice Company, Limited	Tls 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28 2 08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9 000	Tls. 25	Tls. 25	none	——	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	May 30, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	——	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	——	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	——	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30 000	Tls. 10	Tls. 10	—	——	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4-08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co, Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	——	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 90	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 95	,, 125,000	" 47,800	" 100	5½ ,,	Do
do	1894	,, 103	,, 105,000	" 60 000	" 100	6 ,,	Do
do	1895	,, 90	,, 115,000	" 110,900	" 100	5 ,,	Do
do	1896	,, 90	,, 140,000	" 135,700	" 100	5 ,,	Do
do	1897	,, 90	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 103	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 95	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 103	,, 250 000	" 200,000	" 100	6 ,,	Do
do	1902	,, 103	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 103	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 103	,, 214,500	" 214.500	" 100	6 ,,	Do
do	1905	,, 103	,, 320.000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept.
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 95	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 90	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 95	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 102	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept
do	1896	,, 90	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 102	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 102	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 102	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 102	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 100½	,, 200,000	" 200.000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 90	,, 100,000	" 100.000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2.000 000	" 200,0 0	" 100	6 ,,	June & Dec.
Shangbai and Hongkew Wharf Co., Debentures	1902	,, 102	,, 799.800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures		,, 101	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 102½	H'kow Tls 100,000	H'kow Tls 100.000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170 000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92.000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110.000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 100	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, August, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	7.00	7.25	7.00
1907	$300,000	225,000	22,500y	10	10	....		Bruang Ltd.	5.75	6.25	5.75
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	11.00	12.00	11.00
1903	£400,000	350,000	350,000a	1	1	....		Duff Development Co., Ltd.	2.70	2.85	2.70
1907	$400,000	375,000	37,500b	10	10	....		Kanaboi, Ltd.	....	4.00	4.00
1901	£60,000	60,000	60,000	1	1	....	1/- interim for 1908	Kinta Tin Mines, Ltd.	10.00	10.75	10.00
1906	£100,000	100,000	100,000	1	1	....		Kledang Tin Mining Co., Ltd.	4.00	4 50	4.00
1905	$150,000	99,000	9,900c	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	7.75	7.75
1906	£120,000	120,000	120,000	1	1	....		Lahat Mines Ltd.	9.25	9.60	9.25
1906	£30,000	30,000	30,000	1	1	....		Malaya and Siam Corporation, Ltd.	....	12/6	12/6
1906	$450,000	450,000	45,000	10	10	....		Malacca Tin Dredging Co., Ltd.	....	5.50	5.50
1906	£250,000	179,500	600,000h	5/-	5/-	....		Pahang Consolidated Co., Ltd.	28/-	28/6	28/-
			100,000	1	1	....		" " " 7% *Pref*	....	....	nominal.
1907	£100,000	80,000	80,000j*	1	1	....		Pengkalen, Ltd.	6.50	7.00	6.50
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	5.25	5.75	5.25
1907	$450,000	300,000	30,000h*	10	10	....		Rahman Hydraulic Tin Mines, Ltd.	9.50	10.00	9.50
1905	£27,000	21,750	21,750e	1	1	....	1/- interim during 1907	Rambutan, Ltd.	6.50	7.00	6.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	5.10	5.30	5.10
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	5.10	5.30	5.10
1905	£40,000	40,000	40,000	1	1	....		Redhills Tin Mining Co., Ltd.	....	0.50	0.50
1898	Gs2,500,000	2,500,000	25,000	100	100	....	7½% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd.	....	....	875.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd.	0.85	1.00	0.85
1907	$500,000	500,000	50,000	10	10	....		Salak South, Ltd.	9.00	9.50	9.50
1907	£80,000	80,000	80,000	1	1	....		Sempam Tin Mines, Ltd.	1.00	3.50	3.50
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd.	6.75	7.25	6.75
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	4.50	6.00	4.50
1907	£90,000	70,000	70,000z	1	1	....		Tekka, Limited	9.75	10.00	9.75
1902	£160,000	149,185	149,185f	1	1	....	5/- during 1907.	Tronoh Mines, Ltd.	9.50	10.00	9.50
								RUBBER			
1905	£150,000	124,125	46,500	1	1	....	20% for year ending 31-12-07	Anglo-Malay Rub. Co., Ltd. *Fully paid*	3.10.0	3.15.0	3.15 0
			103,500	1	17/6	....		" " " *Contributory*	....	3.10.0	3.10.0.
1905	$200,000	126,000	12,600g*	10	10	....	12½% interim for 1907	Balgownie Rub. Estate Ltd.	13.00	14.50	14.50
1904	£30,000	22,750	22,750i	1	1	....		Batu Caves Rub. Co., Ltd.	....	2.2.6	2. 2. 6.
1903	£70,000	66,700	66,700j	1	1	....	30% for year ending 31/3/08	Bukit Rajah Rubber Co., Ltd.	....	4.10.0	4.10.0.
1906	$150,000	125,000	12,500k	10	10	....		Castlewood Rubber Co., Ltd.	....	9.00	9.00
1904	£16,000	16,000	10,000	1	1	....	37½% for year ending 31-3-08	Cicely Rubber Estates Co., Ltd.	4.5.0	4.9.0	4. 9. 0.
			6,000	1	1	....	42½% for year ending 31-3-08	" " " " 5% *Pref*	4.5.0	4.12.6	4. 12. 6.
1905	£75,000	55,000	55,000l	1	1	....	10% for year ending 31-12-07	Consolidated Malay Rub. Estates, Ltd.	....	2.2.6	2. 2. 6.
1906	£310,000	259,530	181,454m	1	1	8,784	12½% for year ending 31-12-07	Highlands & Lowds. Para Rub. Co., Ltd.	1.12.6	1.15.0	1. 12. 6.
			123,546	1	12/6	....		" " " " *Contributory*	1.0.0	1.2.6	1. 2. 6.
1906	£180,000	180,000	180,000	1	1	....	3% interim for 1907	Kuala Lumpur Rubber Co., Ltd.	19/-	1.1.0	1. 1. 0.
1907	£320,000	201,500	184,000d*	1	1	....		Lanadron Rubber Estates, Ltd.	....	1.7.6	1. 7. 6
			70,000	1	5/-	....		" " " *Contributory*	....	10/-	10/-
1906	Gs 175,000	175,000	540	250	250	....		Langen Rub. and Cocoanut Co., Ltd.	....	....	250
			160	250	250	....		" " " " " *Deferred*	....	....	250
1906	$250,000	225 000	22,500n	10	10	....		Ledbury Rubber Co., Ltd.	....	8.75	8.75
1895	£100,000	76,100	661,000e*	2/-	2/-	....	20% for year ending 31-12-07	Linggi Plantations Ltd., *Ordinary*	9/3	9/6	9/3
			10,000	1	1	....		" " " 7% *Pref*	....	....	1. 0. 0
1906	£300,000	283,125	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	19/6	20/-	19/6
			140,000	1	1	....		" " *Ordinary*	....	9/-	9/-
			45,000	1	12/6	....		" " *Contributory*	....	....	nominal
1903	£30,000	20,000	20,000o	1	1	....	35% for year ending 31-12-07	Pataling Rubber Estates Synd. Ltd.	4.15.0	5.2.6	5. 2. 6.
1906	$250,000	225,000	22,500b*	10	10	....		Ragalla Rubber Co., Ltd.	....	9.00	9.00
1904	£20,000	10,035	2,588a*	1	1	....		Sagga Rubber Company Limited	....	....	2.10.0
			12,412	1	12/-	....		" " " "	....	....	....
1904	$100,000	99,000	990k*	100	100	....	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	....	250.00	250.00
1898	£30,000	30,000	300,000	2/-	2/-	....	41% for year ending 31-12-07	Selangor Rubber Co., Ltd.	13/6	14/6	14/6
1903	$250,000	250,000	2,500	100	100	....		Singapore & Johore Rub. Co., Ltd.	....	....	90.00
1905	$100,000	100 000	10,000	10	10	....	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	....	11.50	11.50
1906	£110,000	100,000	100,000l*	1	1	....		Sungei Kapar Rubber Co., Ltd.	....	1.12.6	1. 12. 6
1904	£50,000	41,920	50,000p	1	1	....		Sungei Way (Selangor) Rub. Co., Ltd.	1.7.6	1.10.0	1. 10. 0
1904	£60,000	50,600	506,000q	2/-	2/-	....	55% for year ending 31-3-08	Vallambrosa Rubber Co., Ltd.	11/9	12/6	12/6
								GENERAL			
1894	£5,377.10.0	4,805	7,688c*	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	....	5.50	5.50
1898	$225,000	225,000	4,500	50	50	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd.	137.50	140.00	140.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 14,000,000u 250,000v	£2-0-0 per share at exchange 1/9 7/8 for half year ending 30-6-08.	Hongkong & Shanghai Bank'g Corpt'n.	....	....	80 5. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd.	....	130.00	130.00
			6,000	100	....	....	7% for year ending 31-10-07	" " 7% *Pref*	....	115.00	115.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-07	Maynard & Co., Ltd.	....	19.50	19.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	....	80.00	80.00
			2,750	100	100	....	7% for year ending 31/12/07	" " " " 7% *Pref.*	102.50	105.00	102.50
1903	$600,000	240,000	24,000r	10	10	....		Singapore Cold Storage Co., Ltd.	....	5.00	5.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd.	....	42.50	42.50
1903	£400,000	400,000	400,000	1	1	....		Singapore Electric Tramways, Co., Ltd.	4/3	4/6	4/3
1904	$160,000	112,000	1,120f*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	....	45.00	45.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	....	130.00
1890	$500,000	500,000	4,956i*	100	100	400,000 458,925w	5% interim for 1908	Straits Steam Ship Co., Ltd.	190.00	....	190.00
1904	$40,000	$35,350	2,535s	10	10	....		Straits Tobacco Factory, Ltd.	....	2.50	2.50
			1,000	10	10	....		" " " "	....	....	nominal.
1887	$3,000,000	3,000 000	300,000	10	10	1,200,000 1,197,409x	10% & 5% bon. for half yr. end. 31-3-08	Straits Trading Co., Ltd.	49.50	50.00	50.00
								DEBENTURES			
								Howarth Erskine, Ltd. 6% .... $ 600,000	....	2%	2% prem.
								Riley, Hargreaves & Co., Ltd. 6% . 225,000	....	2%	2% prem.
								Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
								Singapore Municipal 6% 400,000	....	....	20% prem. nom.
								" " 5% 1,878,000	4%	....	4% prem.
								" " 4½% 1,600,000	2%	5%	5% prem.
								" " 4% 602,900	....	....	5% dis. nom.
								Straits Engineering Synd. Ltd. 6% . 45,000	....	....	par.
								Tanjong Pagar Dock Board 5% . 1,050,000	....	....	par.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h 100,000 " *Ord.* / 45,500 " *Pref.*
i 7,250 "
j 3,300 "
k 2,500 "
l 20,000 "
m 5,000 to be issued to employees

n 2,500 unissued.
o 10,000 "
p 8,080 "
q 94,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "

*a** 5,000 unissued.
*b** 2,500 "
*c** 916 "
*d** 66,000 "
*e** 239,000 "
*f** 480 "
*g** 7,400 "
*h** 15,000 "
*i** 44 "
*j** 20,000 "
*k** 10 "
*l** 10,000 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, AUGUST, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Sellers.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-08	4%	for ½ year	100 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	55 Buyers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,729.20	31-10-07	20%	for 1 year	41 Sellers.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	80 Sales.
Oriental Hotel, Ltd., Ordinary }		3,000	50	50			31-8-06	15%	for 1 year	50 Nominal.
}	250,000				62,285.42					
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	3,259.65	1,774.45	30-9-07	7%	9 mos.	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 99.80
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 97.60
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 96.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 83.00
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 83.00
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 83.80
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 85.80
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 93.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 94.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 89.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 94.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 95.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 530.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	7%	June and Dec.	,, 55.55
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 36.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 64.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 24.50
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 95.20
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	16%	July and Jan.	,, 85.00
Fuji Gassed-Yarn Company, Limited	50	50	18%	July and Jan.	,, 82.20
Tokyo Cotton Spinning Company, Limited	50	50	8%	July and Jan.	,, 32.10
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 50.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 7.65
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 74.90
Ensuiko Sugar Refinery Company, Limited	50	12½	20%	June and Dec.	,, 19.40
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 76.40
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 63.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 52.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 10.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 60.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 79.55
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 81.40
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 63.80
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 79.00
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 69.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 35.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 16.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 105.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 87.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 43.00
Tokyo Stock Exchange Company	50	50	10%	June and Dec.	,, 110.60
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 108.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 70.00

BANGKOK QUOTATIONS

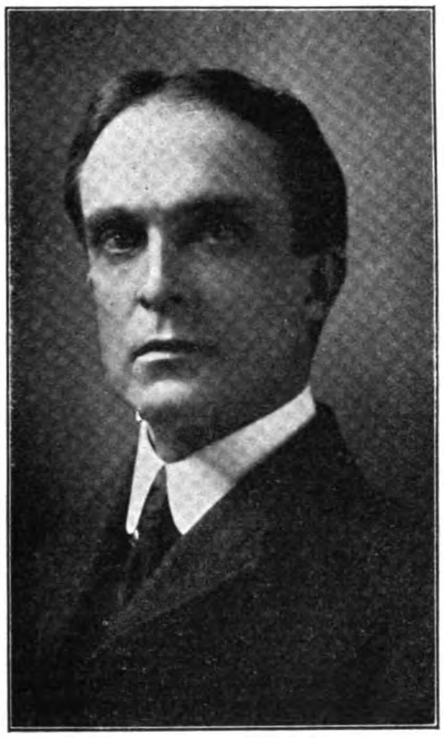
(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 505	Tcs. 505	1901	£ 300,000	30,000	£ 10	£ 300,000	Tcs 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd	,, 200	,, —	,, 210	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending 2%	Dec. 31, 1906
Siam Tramway Co., Ltd	,, 160	,, 168	,, 168	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—		Mar. 31, 1907 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, 124	,, 127	,, 129	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	2½%	Dec. 31, 1907
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	June 30, 190 Dec. 31, ,,
Howarth Erskine, Ltd.	,, —	,, —	,, 235	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	7½%	Oct. 31, 1907
Bangkok Dock Co., Ltd.	,, —	,, —	,, 305	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 100	,, 100	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, 1,350	,, 1,450	,, 1,450	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1908
Menam Motor Boat Co.	,, 130	,, —	,, 140	1905	,, 200,000	2,000	,, 100	,, 125,000	—	5%	July 31, 1907
Jenderata Rubber Co.	,, 65	,, 70	,, 70	1906	£ 40,000	4,000	£ 10	£ 3, per Share	—	None	—
Langsuan Tin Mine Co.	,, —	3/	4/	1905	£ 170,000	170,000	£ 1	£ 60,000	—	—	—

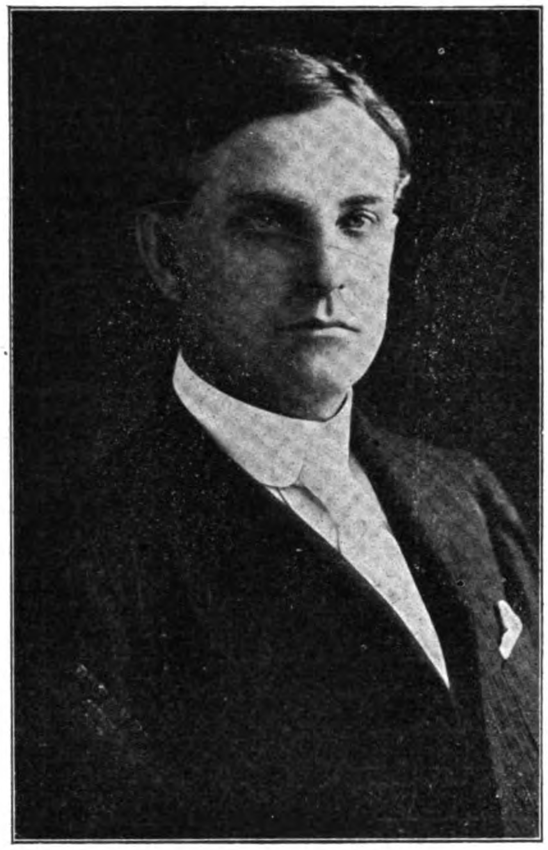
THE FAR EASTERN REVIEW

COMMERCE ENGINEERING FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, OCTOBER, 1908 No. 5.



Judge FRANK B. INGERSOLL
The Pioneer Promoter of the Paracale District



Mr. M. A. CLARKE
President of the Benguet Consolidated Mining Co.

THE PHILIPPINE PLACER BONANZA AT PARACALE

The last twelve months has witnessed a remarkable advance in mining development in the province of Ambos Camarines, Philippine Islands. At this time last year, notwithstanding the unshaken faith of the individuals having the greatest interest in the Paracale district, the outlook was none too bright. Apart from desultory work in a small way, on different quartz prospects, the only genuine activity was manifested in the unrewarded efforts of the men in charge to bring about the successful and continuous operation of the first gold dredge set up in that region.

A strange fatality seemed to follow the career of this dredge which was constructed by the Paracale Gold Dredging Company, Limited. The material reached the ground in February, 1907, and the work of construction began at once. Many unforeseen obstacles developed from time to time, but, at last, in the month of August, the dredge was completed and operations began. It was soon apparent, however, that the apparatus was not adapted to handle the ground for which it was designed and a long shut down followed in order to give the dredge a general overhauling and to remodel the gold-saving devices.

(Continued on page 160)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

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AGRICULTURAL LOANS

At a recent meeting of the Legislative Council at Singapore the Agricultural Loans Ordinance was passed authorizing the placing of $50,000 at the disposal of a fund for disbursement as loans to the farmers within its jurisdiction.

Recently the Philippine Government established an agricultural bank with a capital of ₱1,000,000 making loans available to the Filipino farmer along the same lines.

India has carried out a most successful scheme for assisting the struggling farmer almost along the same lines as the Straits Government.

The main object of this paternal attitude of the governments involved is the protection of the farmer from the ever present usurer and at the same time encourage greater enterprise among the agricultural classes who have suffered for lack of funds to carry on their work successfully. While provision is made to meet the demand for money in commercial enterprises little attention has been given the agriculturalist in the Far East as regards his financial needs. He raises his crop someway and manages to deliver it at a nearby market. To finance this most important part in the development of the country's wealth, the far eastern farmer has been driven to the usurer who took more than his pound of flesh. Indeed, the money lender usually reduced the poor farmer to slavery, giving him a stinted living and gathering in almost the entire fruits of his labor.

The avariciousness of the Chetty, the usurer of the Straits Settlements, was made the subject of a speech by Mr. Thornton at the discussion of the Loans Ordinance recently. According to the *Straits Times* he said that he thought "the present state of affairs was a very serious one. And he spoke from personal knowledge. Natives with small holdings were borrowing sums of money from Chetties at ruinous rates of interest, and, as an instance, he cited a case which had been brought to his notice from the State of Perak in which it appeared there was a sum of $200,000 on mortgage of agricultural land, with eleven firms of Chetties trading in the district. To his mind the rate of interest being charged was exorbitant—18 or 20 per cent. And the result was that the holder of the land was practically never out of the clutches of the Chetty. He did not desire to defame the Chetty community in any way, as there were doubtless Chetties and Chetties, and the Chetty trading in the large town was a different person to the Chetty trading in agricultural districts.

"That being the case, it was, he thought, very advisable that the native holder of land should have some other source from which to borrow money other than that of the small lender in the district.

"But the whole Chetty system, he declared, was exceedingly unsound from an economic point of view, because it withdrew from circulation in the Colony large sums of money, the exorbitant rates of interest being collected and remitted to India. They had had, he was almost going to say solemn, warning in Penang recently, where no less than four millions had gone out of the Colony in dealings in tin, with the results that stagnation and depression in trade had occurred.

"He urged upon Government the great necessity at the present time of an agricultural bank, not under the control of Government, but guaranteed by them so far as interest was concerned. In the report it was pointed out by Lord Cromer that the chief difficulty experienced was in respect of the danger that the cultivator might make use of the bank merely to add to his indebtedness. It would be useless if people were allowed to borrow money when they were already indebted to native money lenders. He did not know whether some amendment might not be made to the present Bill in this respect, so that before a cultivator obtained a loan he would have to wipe out his previous indebtedness.

"His Excellency the Governor, in reply, pointed out that the intention of Government was more modest than the hon. member seemed to think. Disbursements would be made by way of loans to agriculturists for improvements to land, the purchase of cattle, or agricultural implements, or any other purposes connected with agricultural objects. All repayments of such loans with the interest due were to be paid into the Agricultural Loans Fund. Their scope was very limited and, after all, the peasantry was also very limited. In Perak and other States a fund was being administered successfully on lines similar to those proposed. Government had no ambition for a great agricultural bank, and he did not know that it would be such a boon to the peasantry as the hon. member appeared to contemplate.

"They knew that, at present, the peasant was not such a thrifty person. He found many occasions for great feasts which were, as a matter of fact, mainly responsible for a large amount of his indebtedness. With the provision of funds for such a purpose the Government had nothing to do, and, he hoped, never would. If a bank was started on the lines suggested all that the management had to look to was a security good enough for the amount. Here Government was going to proceed on purely paternal lines. The peasants were rather a helpless and a thriftless people, and they desired to help and encourage them and perhaps lead them, when they had money, to be more careful than hitherto. The bill, as drafted, followed the lines of a similar measure in India, while the rules were practically identical with those adopted in the Native States, and to a large extent the same as those which the United States Government had been considering for adoption in Manila."

Commenting on the action of the Legislative Council, The *Pinang Gazette* says:

"It is true, as His Excellency the Governor pointed out, in replying to Mr. Thornton, that the intention of the Straits Government with regard to loans to agriculturists is 'modest,' but it is satisfactory to find that even within the limited scope of the Bill just introduced into the Legislative Council the authorities have grasped the principle involved and that they are in earnest in applying that principle to the test. His Excellency was echoing but a truism when he remarked that the peasant is not thrifty; and, while the Government cannot inculcate habits of thrift by force, it can at least—as we are glad to see is its intention—do something in a 'modest' way to free him from the thraldom of the native money-lender whose rates of interest are exorbitant and who takes good care to pocket his interest before parting with the loan. Should it be found that the peasant is not inclined to avail himself of the advantages thus afforded by a paternal Government, then he will only have himself to blame—but we are not so pessimistic as to believe that this will ever come to pass, "helpless and thriftless" as the peasant is, especially on the occasion of a great feast in which his heart ever rejoices."

A résumé of the rules applying to the agricultural loans under the Straits Settlements Ordinance as well as the rules adopted by the Philippine Agricultural Bank may be of interest in view of application of the principle in communities so similar in status and in the character of the people. The rules adopted by the Straits Government follow in part:

1. In these rules "Collector" includes Collector of Land Revenue and District Officer.

2. Every application for a loan shall be made in writing in the Form in the First Schedule hereto to the Collector of the District in which the land to be benefited is situated.

3. The Collector, if satisfied as to the nature of the security offered and as to the objects of the loan, shall forward it to the Agricultural Loans Commissioners, together with a report and a certificate in the Form of the Second Schedule hereto.

4. Upon the receipt of the Collector's repotr, the Agricultural Loans Commissioners may grant the loan.

5. No loan shall exceed fifty per cent. of the value of the security offered.

6. Ordinarily the security shall be a first mortgage on landed property. In exceptional cases, other forms of security may, with the Governor's consent, be accepted.

7. A loan of $100 shall ordinarily be repayable by twelve monthly payments of $8.84 or twenty-four monthly payments of $4.67 or thirty-six monthly payments of $3.28.

8. Except with the sanction of the Governor in Council, no single loan shall exceed $200.

9. An instalment of a loan shall be repayable without demand at the office of the Collector. In the event of an instalment remaining unpaid after the lapse of ten days from the due date of payment, a notice of demand shall be deemed to be duly served if sent by registered post to the address given by the borrower in his written application for the loan. The notice shall be in the form of the Third Schedule hereto, and there shall be payable in respect of it the sum of twenty-five cents which shall be recoverable as though it were part of the loan.

10. All accounts relating to loans under this Ordinance shall be audited by the Auditor-General, who shall, in January and July of each year, submit a report to the Governor in Council.

FIRST SCHEDULE.—FORM OF APPLICATION FOR A LOAN

To the Collector.

SIR:

$\frac{\text{We}}{\text{I}}$ have the honor to apply for a loan under the provisions and subject to the conditions of "The Agriculturists' Loans Ordinance 1908."

2. The amount $\frac{\text{we}}{\text{I}}$ wish to borrow is $

(say dollars) and $\frac{\text{we}}{\text{I}}$ intend, if the loan is granted, to apply the money to the purpose of

3. $\frac{\text{We}}{\text{I}}$ offer as security for the loan

4. $\frac{\text{We}}{\text{I}}$ offer interest at the rate of half per cent. per mensem and propose to repay the entire loan within years by monthly instalments of $

$\frac{\text{We}}{\text{I}}$ have the honor to be,
Sir,
Your most obedient servant,

....

The rules adopted for the regulation of loans by the Philippine Agricultural Bank follow.

Requests for loans will not be considered, if not made upon the official blank.

Application blanks can be obtained from the Insular Treasurer or any provincial treasurer.

Applicants for loans must answer all questions in the printed application blanks clearly and fully.

The use to which the money is to be applied must be specifically stated, not in general terms.

Loans will be made solely and exclusively for agricultural purposes, namely:

1. For the payment or satisfaction of incumbrances on agricultural lands.

2. For the construction of drainage and irrigation works.

3. For the purchase of fertilizer, agricultural seeds, machinery, implements, and animals to be used exclusively by the borrower for agricultural purposes.

Loans will be made only.

(a) Upon the security of a first mortgage on unincumbered, improved urban property.

(b) Upon the security of a first mortgage on unincumbered agricultural land.

(c) Upon the security of a chattel mortgage to the Bank on crops already harvested, gathered, and stored.

Loans can not be made for less than ₱50.00 nor more than ₱25,000.00.

No loan will be made for more than forty per cent. of the value of the property offered as security.

No loan will be made by the Bank to any person or corporation not engaged in agricultural pursuits.

No loan will be made on property, the title of which is not in the mortgagor.

All buildings of strong materials, and stored crops covered by a mortgage must be insured for the benefit of the Bank.

All expenses of registration of a mortgage shall be paid by the borrower.

Loans can not be made for a period exceeding ten years.

The rate of interest on loans shall be ten per cent. per annum, payable at least once a year.

All applications for loans should be sent to The Agricultural Bank of the Philippine Government, Manila, P. I.

India has been greatly benefited by an extensive and popular system of co-operative land banks and credit societies. In three years these institutions have lent out 37 lakhs of Rupees and still retain 25 lakhs of assets. The agricultural credit societies have a capital of over ten lakhs over half of which has been subscribed by the members and upon which one half the balance has been borrowed from the outside and the balance advanced by the government. The success of these loans may be gathered from the fact that the report shows that not one debt had been written off and a handsome reserve is being built up. Not only is the farmer in India receiving financial aid at reasonable interest but he is managing to get out of the clutches of the usurer who heretofore held him in bondage. In fact, the agricultural banks and societies in India are saving the country by making it possible for the farmer to expend his energy by wise direction to its full limit in the development of the country's inexhaustible resources.

RAILWAYS IN CHINA

The FAR EASTERN REVIEW for September was practically devoted to a résumé of the history of railways in China to the exclusion of practically every other feature. The editor endeavored to cover the subject from the many years' accumulation of data available as accurately as such an exhaustive subject would permit in the limited space available. The many expressions of appreciation received, however, have been gratifying, and especially so in view of the fact that we realize how far we fell short of giving other than an epitome of a comprehensive presentation of this important subject.

The railroad will do more to reconstruct China along modern line than any other element of progress. Her undeveloped resources have not yet been realized by reason of their inaccessibleness so that the initiative of the new empire builders must have for its purpose the construction of lines of communication consistent with the geographical character of the country and its attractiveness in agricultural and other lines of production necessary to give satisfying returns on capital invested, and at the same time introduce the enterprise necessary to its development.

Capital has no nationality. It demands security and a proper return in the markets of the world for its investment. The development of the extensive railway systems of China shall be measured by the security accorded the capital ready for investment and the promise of returns in open competition with similar investment in other sections of the globe. This does not have special reference to foreign capital. It applies equally to Chinese capital. As we said before, capital has no nationality. It trembles at insecurity and demands the highest market quotation. The future development of this feature of China's reconstruction along new lines will be measured by the protection afforded, the encouragement given by the government and the people and the extent of co-operation in every department of activity accorded those who are endeavoring to bring the most inaccessible section of the country in touch with western enterprise.

MINING IN THE PHILIPPINES

A review of the progress made during the year in the development of the different mining properties indicates that those interests are greatly encouraged and that there is prospect of greater activity during the coming year. Few, not familiar with the prevailing conditions in the archipelago, may appreciate the remarkable manner in which the pioneer miners and prospectors have accomplished impossibilities and are slowly winning victory from apparent defeat.

The two mining organizations in Benguet have proceeded slowly but surely in their operations with the result that the future of the companies is bright. The Consolidated started with a three stamp mill and has not only doubled the capacity of the mill, but added an extensive cyanide plant of the most modern equipment. All this improvement has been paid for out of the proceeds of the mine. From the day the first car load of ore passed into the hopper the mine has paid its own way and supplied the funds to treble its original capacity.

The Bua Mining Company has demonstrated its faith in the district by installing a modern plant and while it has not been in operation for a lengthy period, the prospects for its future are bright.

In the Paracale district, seems to have been struck the bonanza of placer mining in the islands. In the résumé of the history of the district in another column will be found the most conservative figures on the output, carefully authenticated by the writer. That the average cubic yard of dirt dredged by the Paracale company produced $1.25 in gold spells 'bonanza' in large letters. Little, if any, placer ground in the world can show such a record on a six-month average. This report of the amount saved may serve to draw a smile from the incredulous, and indeed the management hesitated about giving out the information for that very reason. But the dredge is still working and there is no barbed wire fence around it to prevent the seeker after truth to authenticate the report. There is no stock for sale in any enterprise launched in Paracale so that the publication of the report is not in the interest of the company or its shareholders. It demonstrates, however, that the Philippine Islands are exceptionally rich in gold and that capital well directed by experience may find in the archipelago a most desirable avenue for investment in the development of its mineral wealth, the surface of which has not at this time been more than scratched.

It might be said in passing that the failures in mining projects in the Philippines must be laid to inexperience and unwise direction, and not to the lack of mineral wealth. Evidence of this may be found in Masbate. Thousands have been squandered uselessly through ignorance where wise and experienced direction would have won by this time the greatest possible returns from investment. Those who are trying at the present time to develop Masbate property and demonstrate that consistent and experienced direction is the only requirement to make enterprise pay there, are suffering from the mistakes of those who made the name of Masbate spell 'failure.' Those who have interests in Masbate, however, are not discouraged. They know that once the truth about the deposits of gold there seeps through, their most sanguine dreams shall be realized.

EDITOR DONALD HONORED

The FAR EASTERN REVIEW learns with gratification of the signal honor conferred on Mr. W. H. Donald, formerly editor of the Hongkong *Mail* and one of the most brilliant

journalists in the Far East, by His Imperial Majesty, the Emperor of Japan, who was pleased to confer upon him the Order of the Rising Sun, 6th Class, in recognition of his services as war correspondent during the recent unpleasantness. Mr. Donald was special representative of the *Sydney Daily Telegraph*, The *Melbourne Age*, *Adelaide Advertiser*, the *China Mail* and the *London Express*. He recently accepted the position of special correspondent of the New York *Herald* in China.

ANGLO-AMERICAN PENNY POSTAGE

The introduction of the two cent an ounce postage rate on letters between any part of Great Britain and Ireland and the United States, on October 1, was another step in the direction of closer union between the two countries. Congratulations are in order for the large share taken by Mr. Henniker Heaton in the preliminary educational campaign which is really responsible for the reduction of postal rates generally, and also so richly deserved by Mr. Buxton, the British Postmaster General, and Postmaster General Meyer of the United States. In bringing about this important step in the direction of eliminating international postal boundaries, the heads of the two departments worked most harmoniously. With this important arrangement, there has been set an example that will surely be followed by all the commercial nations and with the result that the penny stamp will accomplish more for the establishment of amicable international relations than all the conferences at the Hague.

The American press is unanimous in endorsing the new arrangement, and, with reason, for it places the advantages of penny postage to almost every part of the globe. For instance from the American viewpoint, a two-cent postage stamp will carry a letter to any point in Alaska, Panama, United Kingdom, Mexico, Canada, Hawaii, the Philippines, Shanghai, Tutuila, Guam, Porto Rico and Cuba from any point in the United States. This is a large circuit for the American domestic postage stamp.

This last agreement is one of the very greatest importance since there is little doubt but that Germany and other countries will soon realize the advantages of the penny postage. In short, the next decade should see the penny postage stamp obliterate all postal frontiers.

THE LATE BARON IWAZAKI

Commenting on the death of the late Baron Iwazaki, the *Japan Financial and Economic Monthly* says:

"On March 26th, we have to note the death of Baron Iwazaki, the creator of the enormous wealth of the present Iwazaki family, and of one who has contributed a great deal towards the cause of the country. The Baron was not yet 60 years of age, and his death at this period is to be regretted by all. Through the efforts of this distinguished personage, the Mitsubishi firm and the Nippon Yusen have been brought into existence which have greatly added to the weight of our country. In giving a description of the Baron, we must quote the words of Prince Ito and Count Okuma. According to the former, the Baron was noble in character and keen in foresight and never followed others for the sake of following. Assisting his nephew, he accomplished much towards the cause of the Iwazaki family. Count Okuma says, 'He was a man of strong will and resolution and has accomplished much that ordinary men fail to do, but it is to be regretted that chance was not given him to work for the cause of the country on a larger scale.' With the death of Baron Iwazaki, we have indeed lost one of the most remarkable men that our country has ever produced.

"The following is an epitome of his biography. The Baron was the second son of Iwazaki Yajiro, and the younger brother of Iwazaki Yataro. He was born at Inokuchimura, in the province of Tosa. In the 4th year of Meiji, he removed to Osaka where he studied the Chinese classics under Shigeno Seisai. The next year he went to America to prosecute his studies. After he came back to Japan he was made vice-president of the Mitsubishi Co. After his elder brother Yataro, who was the president of the Company, died, he took the chair of president.

"In September of the same year, the Mitsubishi Co. and the Kyodo Unyu Kaisha (Mutual Transportation Company) amalgamated, and the present Nippon Yusen Kaisha was organized. He established the Mitsubishi-sha and opened the business of mining, ship-building, and banking. In September of the 23rd year, he was appointed a member of the Upper House. In the 24th year of Meiji, he was relieved of his membership in the Upper House at his own request. In the 26th year of Meiji, he established the Mitsubishi Stock Company in accordance with the new code of commerce. In the 29th year he was given the title of baron and ranked in the class of Nobles. In the same year, he became president of the Bank of Japan."

NEW PUBLICATIONS

Irrigation: Its Principles and Practice as a Branch of Engineering, by Sir Hanburr Brown, K. C. M. G., Member of the Institute of Civil Engineers, late of the Royal Engineers, has reached our desk from the presses of Messrs. Archibald Constable & Co., Ltd., London. The volume is a comprehensive work on irrigation and is based on the experience of British engineers in connection with the successful irrigation systems in Egypt and India. The work is profusely illustrated and leaves little unsaid of value to engineers to guide them in the installation and direction of similar undertakings. The standard works on irrigation from the view point of the engineer were freely consulted by the author and the volume offers all that is most important as a book of reference. It will be of greatest value to engineers of the Far East for the reason that it deals with the many problems to be solved in the installation and operation of irrigation systems in Oriental lands. The present decade has seen extensive development of irrigation works and few governments are neglecting the encouragement of this kind of enterprise that makes for marked enhancement of agricultural lands and increase in production which after all is the wealth and backbone of any country. For sale at Messrs. E. C. McCullough & Co., Manila, P. I. Price $5.00 U. S. C.

Railway Track and Track Work, by E. E. Russell Tratman, A. M. Am. Soc. C. E.; Mem. Am. Ry. & M. of Way Assoc.; Associate Editor of the *Engineering News*, appears in its third edition fully revised and issued from the presses of The Engineering News Publishing Co., New York. The work needs little introduction as the first and second editions have had wide circulation and this edition was conceived only after all the former ones were exhausted. This work has been brought up to date, and, besides additional illustrations, an appendix has been added setting forth the statistics of the details of track construction on a number of leading American railway systems. The index containing the names of leading engineers, inventors and authorities quoted in the work is of itself the foundation for a complete library on this important subject. It must be admitted that no more comprehensive volume covering the subject to date has been published during the year.

Road Preservation and Dust Prevention, by William Pierson Judson, Consulting Engineer and author of *City Roads and Pavements*, is received. The volume is devoted to the problem of eliminating the dust menace to health which prevails on macadam roads particularly. It contains a résumé of the experiments of engineers in almost every country in the world and the recommendations made are based on the best experience of years of study of the important problem. The volume will be read with interest by every municipal engineer and official and will serve to reduce the danger from one of the most persistent methods of germ conveyance. The Engineering News Publishing Co., New York.

THE PHILIPPINE PLACER BONANZA AT PARACALE

(Continued from page 157)

Finally in November, 1907, dredging operations were resumed with prospects seemingly bright. Unfortunately, the "Hoodoo" was not shaken off so easily. The wheels of the remodelled dredge had not been moving over sixty hours before the boiler collapsed, the accident being due to a defective plate. This climax in discouragement was sufficient to break the spirit of the average enterprise, but the individuals behind the dredging venture were game and stuck to their task. It took another five months to procure a new boiler and put the dredge in shape to resume operations.

The big buckets began to churn up the dirt again in April of this year, but there was about a month consumed in preliminary work before a well could be dug and a face blocked out to work against. But from the first of May success has been written in big letters and emphasized with every turn of the buckets. The shipments of bullion have been regular, and even the worst "Doubting Thomas" in Manila is beginning to yield to the evidence of his senses—the sight of the yellow metal.

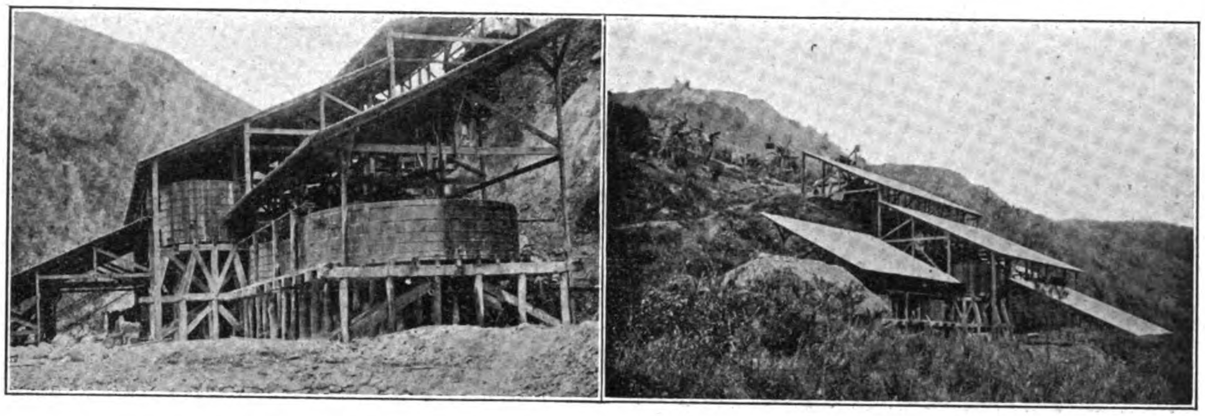
It is well authenticated that during the past five months, the gold won by this dredge has reached approximately the sum of ₱80,000 in value, and during the months of September and October there was a shut down for a period of six weeks for general repairs and changes in the gold saving apparatus. This cuts the actual operating time to about three and one-half months with six working days to the week. This means a product of nearly ₱23,000 a month or ₱275,000 a year.

However, this splendid showing has not been reached without overcoming many obstacles. There are several heavy handicaps to be found in the nature of the ground worked. At times there is considerable clay brought up which is very difficult to break up and so has a tendency to carry off the gold values. Another puzzling point is the presence of a large percentage of black sand which carries the fine gold with it to such an extent that the sand must be saved for treatment in order to win the gold. So much of the sand is dredged up that it speedily swamps the "tables" and necessitates slow working—far below the bucket capacity of the dredge and frequent "clean up." The amount of ground handled has not averaged 300 cubic yards per day of 24 hours. The average amount saved per cubic yard during the operations of the dredge was approximately ₱2.50 or $1 25 gold. This is a remarkable showing and may be fully authenticated. On an average two tons of black sand are saved daily.

One very remarkable feature developed in the operations was the bringing up from the bed of the river, each day, from ten to twelve tons of soft, free-milling sugar quartz. There has heretofore been no apparatus to handle these by-products, but the dredging company is now erecting a tube mill to crush the black sand and quartz of which several hundred tons have already accumulated. The management confidently expects that the output of this mill will increase the product of the dredger by from 50% to 75% of the present figures.

The undisputed success of the Paracale dredge has given a big impetus to mining in the district—as well to quartz mining as to dredging. Quite recently there was organized a corporation known as the Philippine Gold Dredging Company the entire capital stock of which was subscribed by residents of the Philippines and work is being pushed on a dredge which is expected to be ready for operation not later than February of next year. More than half of the stock of this new company was taken by parties living in the province of Ambos Camarines and the balance in Manila.

This company has acquired a large parcel of placer lands from the individual owners which borders directly on the tract being worked by the Paracale dredge now in operation and gives every indication of carrying a continuation of the same alluvial deposit. No pains or expense are being spared to make the new enterprise a success. The Risdon dredge, formerly on the Guinobatan River, Masbate, was purchased and is now being moved to Paracale. However, entirely new pontoons are being constructed and every doubtful or worn part of the machinery is being renewed by the best material from America so that the dredger should in every sense of the word be "as good as new." It is also expected to procure a high class dredging expert from the United States to take charge of the work.



VIEWS OF BUA MINING CO.'S MILL AND CYANIDE PLANT. THIS COMPANY IS COMPRISED OF ENGLISH AND AMERICAN BUSINESSMEN OF MANILA AND HONGKONG AND HAS BEEN CARRYING ON DEVELOPMENT WORK FOR THE PAST TWO YEARS ON A GROUP OF 36 CLAIMS

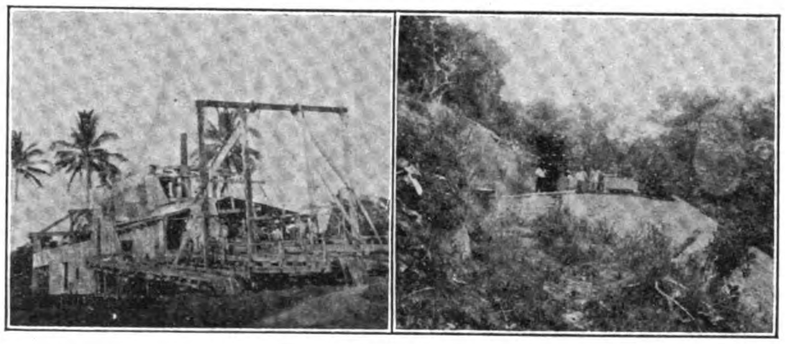
This new venture is something of an innovation in the Philippines as it will be what might be termed "dry land dredging." All of the ground to be worked is removed from any stream and in many parts is covered by cocoanut groves. Careful tests, however, have been made which demonstrated that underneath there is an ancient river bed which carries a rich pay streak.

The outlook in the dredging line does not stop here. Within the last few days there has arrived in the islands from New Zealand, a dreging expert who was interested in the installation of the Paracale dredge. He announces that he has arranged for sufficient capital to install another plant and will have his dredge on the ground and in operation at the headwaters of the Paracale River by the end of the year.

On the Malaguit River, a short distance from Paracale, boring tests have been going on for several months with most satisfactory results. Here there is a large area of dredging land under option to outside capital and in view of the values shown by the tests, it is believed that the year 1909 will see one or more modern dredges installed on the river.

Preliminary prospecting and testing are also being carried on various other streams and conservative estimates indicate that the next four years will see one of the most active dredging districts of the world in the vicinity of Paracale.

Nor has the quartz mining in the district been neglected. The famous old Tumbaga mine, the working shaft of which has been filled with water and debris for twelve years is being cleaned out and, at the time of writing, the working levels have probably been reached. The English Syndicate that formerly held the property thought so well of it that on the machinery alone they must have spent upwards of £10,000 just before the outbreak of the Philippine Insurrection in 1896 which necessitated the suspension of active operations. Much of the old equipment is still in good condition and has been utilized in the process of cleaning out the mine. The objective point is the old working level at a depth of about 100 feet. Years ago a considerable amount of very high grade ore was taken from the old working and if a small part of the stories be true, it will prove well worth the working. However, the present owners are accepting nothing as settled and are cleaning out the property in order to make a thorough test with samples with a view to determining whether the further development of the property and installation of the necessary equipment is warranted. If the values are found there, active operations will begin at once.



VIEWS OF PARACALE RIVER DREDGE AND SAN MAURICIO DUMP

At Mambulao, a few miles from Tumbaga, is another property known as the San Mauricio mines which were held by the same English Syndicate. Here more than 1500 feet of old workings, which were completely filled up by slides, have been cleared out and retimbered since the first of the year. Recent advices from New York are to the effect that financial arrangements have been completed which ensure the erection of a twenty stamp mill at the mine within the next six months.

The entire district of Paracale and Mambulao is heavily mineralized and the mining possibilities seem unlimited. At different points there are a large number of quartz claims in a more or less advanced stage of development and everywhere there is a healthy activity manifested.

At present there are actually engaged in mining operations in the district some 25 white men and 150 natives. This does not include a considerable number of native women who are working "panning" the different streams; nor does it include a considerable force of Chinese carpenters sent from Manila to work on the hull of the dredge which is being erected.

One serious burden to the Paracale miners is the cost of transportation from Manila. Occasionally an inter-island boat will put into the bay off the mouth of the Paracale River and lighter cargo. But it is only during a part of the year that this can be thought of on account of the exposure to the North-western monsoons with full sweep of the Pacific behind it. In consequence most of the freight and passengers must be landed at Daet, twenty miles distant, and sent up the exposed coast by small boats to Paracale.

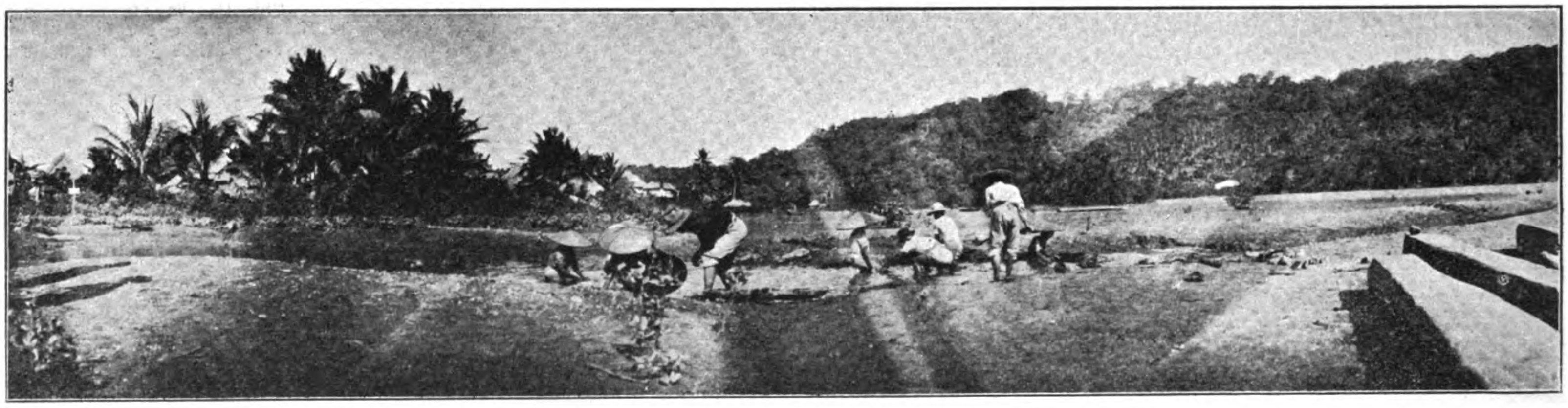
The Malaguit River, which is a stream of considerable dimensions, is readily navigable for some distance by inter-island boats and there is a fine anchorage about three-quarters of a mile above the mouth. Just below this point there is a sharp bend in the river and

a range of hills affords complete protection from the monsoon. However, just at the mouth of the river two barely submerged rocks in the middle of the stream are a great menace to navigation. It is possible for a steamer to creep around the rocks and it has been done a few times in the past, but the tide runs very strong and the risk so great that steamer captains are unwilling to undertake the feat.

With the rocks removed, a safe harbor would be furnished all the year round. Recently the government interested itself in this matter and a survey party is to investigate the conditions with a view to making a report on the feasibility and the cost of clearing out the channel. With these obstacles removed, Malaguit will become a regular port of call for the Manila steamers.

Some idea of the character of the pioneer mining men of Paracale may be gathered from the fact that those interested in the development of that section have banded themselves together in the form of a society known as the Paracale Miners' Association which has for its object the furthering of the interests of mining men in the Paracale district. The meeting was held on October 3rd and two committees were appointed to draft constitution and by-laws and the second to arrange for proper headquarters. The following were elected:

A. J. MacDonald, president; Wm. Kane, 1st vice president; G. Armstrong, secretary and treasurer; Directors, E. R. Simpson, W. Pearson, and J. S. Gillis.



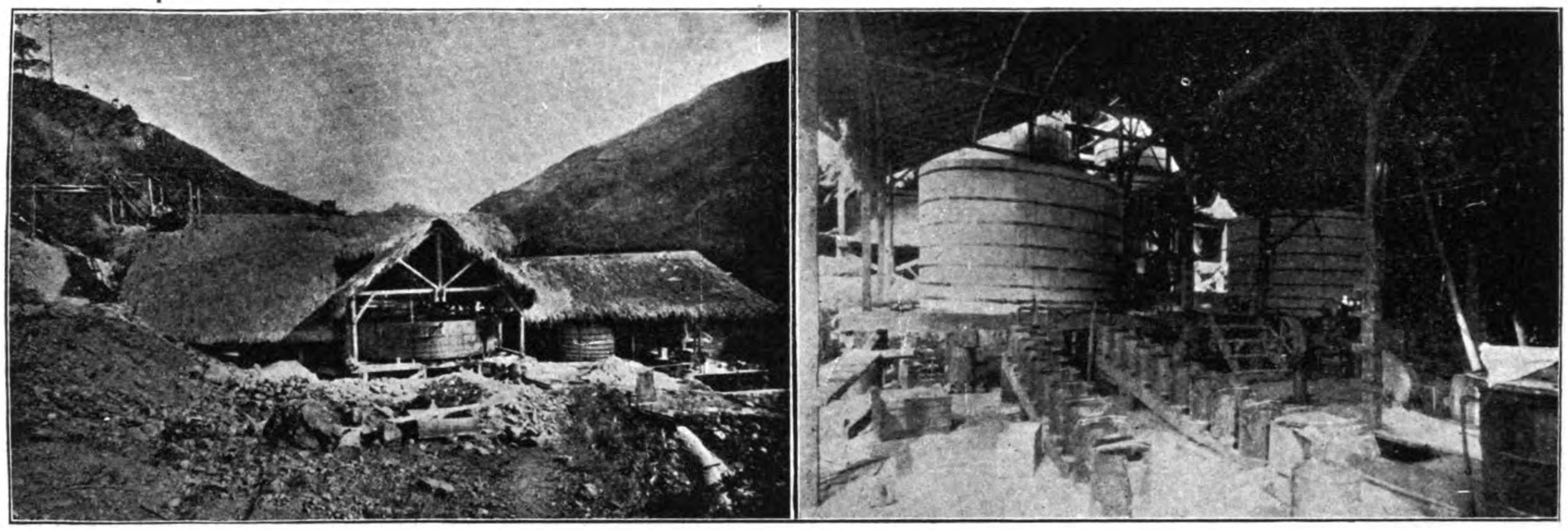
NATIVES PANNING GOLD ON THE PARACALE

THE BENGUET CONSOLIDATED MINING COMPANY

The Benguet Consolidated Mining Company, the pioneer organization in the promising gold mining district of Benguet, is now operating two mills with a capacity each of three stamps with returns most satisfactory to the shareholders who have from the beginning of operations reinvested the net receipts in developing the property and increasing the capacity of the plant. The latest report from the mines controlled by this organization shows a monthly output of about 350 ounces valued at ₱12,600. The monthly expense, exclusive of development, averages about ₱6,000. The net returns make a handsome profit on an investment, in all to date, of ₱302,791. Out of the net receipts, however, an average monthly expenditure in increasing the capacity of the plant of about 4,000 pesos, has been the policy of the company. About 900 tons of rock are milled monthly averaging about ₱14 a ton in gold saved.

In addition to the stamp mills, the company has a cyanide plant with a capacity of 60 tons, and this equipment has been brought to a high state of efficiency. An agitating plant was recently added and concentrators and a filtering system, used successfully in Australia, are now being installed. These additions will make the cyanide plant most effective in securing the greatest possible returns from the slimes. The cyanide plant capacity is also being increased by 50%.

The plant is situated on the Minnesota claim, the principal one of the group of eleven rich claims controlled by the company. The ore is carried to the mill by means of a gravity tramway 70 feet in length and from it the ore is dumped into the mill. The plant is operated by water power, in connection with which a new steel flume one mile long and 18 inches in diameter was recently installed to carry the water to the mill. Superintendent Eye in his last report stated that there were $375,000 gold worth of ore blocked out and the tunneling concluded exceeds 5,000 feet. The company is now constructing a drain tunnel on the lower level which will also serve as a means of egress for the ore sunk underneath the creek. The principal work has been done on the Minesotta claim and includes the main tunnel on the upper level winzes to the lower level and cross-cuts drifting parallel with the main tunnel. Three sides have been blocked but the work below the wenzes had to be stopped on account of the rainy season.



CYANIDE PLANT OF THE BENGUET CONSOLIDATED

The installation of the plant is of a permanent character. It is all under iron and built with a view to withstanding the serious storms in that vicinity. The recent typhoon, which did so much damage in that section, made no impression beyond blowing off a couple of exposed belts.

The officers of the company are: President, M. A. Clarke; Vice-President, H. C. Clyde; Secretary and Treasurer, J. H. Seifert; Directors, M. A. Clarke, W. L. Blackett, H. C. Clyde, J. H. Seifert, N. Peterson, J. W. Haussermann and Fred C. Fisher.

THE USE OF HIGH GRADE FERRO-SILICON

The successful use of high grade Ferro-Silicon, say 25%, 50%, and 90%, and its advantages have been demonstrated. The Sino-Engineering Syndicate of Shanghai, the sole agent for China, has issued some interesting circulars on its use which are of interest to the managers of foundries and steel works.

Silicon, as an essential ingredient of the various products of the metallurgical industry, is of the highest importance on account of the qualities which it imparts to those products.

GROUP OF PARACALE MINERS AND DREDGERS.—THE SAN MAURICIO TUNNEL

The use of Ferro-Silicon is based on the properties of Silicon.

Until quite recently Ferro-Silicon was made in the blast-furnaces only and the highest percentage of Silicon obtained did not exceed 14%.

A few years ago, however, a new product was discovered—the high grade Ferro-Silicon, which is manufactured by an electrolytic process. This product competes successfully with the low grade Ferro-Silicon and will undoubtedly, in a short time, entirely replace the latter.

The fact that the consumption of high grade Ferro-Silicon has quadrupled within three years and now amounts to thousands of tons per annum clearly indicates the superiority of high grade over the low grade Ferro-Silicon.

The properties of high grade Ferro-Silicon and the advantages it possesses over the low grade vary with the manner of its employment.

There are two principal fields of application of Ferro-Silicon:

I. In the Foundry.

II. In the Steel Works.

I.—*The application in the Foundry*:—The low grade Ferro-Silicon is, in general, but little employed in the foundry. When used it is added to the charge of the cupola in order to increase the percentage of Silicon in the cast iron. This mode of employing Ferro-Silicon is, however, rare and usually the desired percentage of Silicon in the cast iron is obtained by a corresponding choice of the charge of the cupola.

With the high grade Ferro-Silicon, however, the position is entirely different and the employment of this product in the foundry which is, naturally, of quite recent date, seems likely to revolutionize foundry-processes.

The high grade Ferro-Silicon, which easily dissolves in molten cast iron, is added in the ladle while the iron is being tapped from the cupola, the quantity being regulated by the percentage of Silicon desired.

It is possible to obtain with one charge of the cupola the different kinds of cast iron, suitable for the different classes of castings. White pig iron, which is of but little use in the foundry, may be transformed into a suitable material by adding high grade Ferro-Silicon in the ladle and in this manner all the good qualities of white pig iron such as purity, strength and fine grain contribute largely to the quality of the finished product.

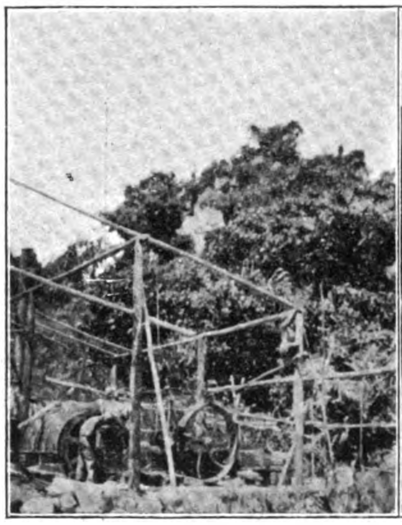
From tests made, it has been proved that the addition of high grade Ferro-Silicon in the ladle not only facilitates the proper machining of the castings, but also considerably increases the strength and ductibility of the material.

For foundry purposes we recommend the 75% Ferro-Silicon which, compared with the other grades, dissolves best in molten cast iron.

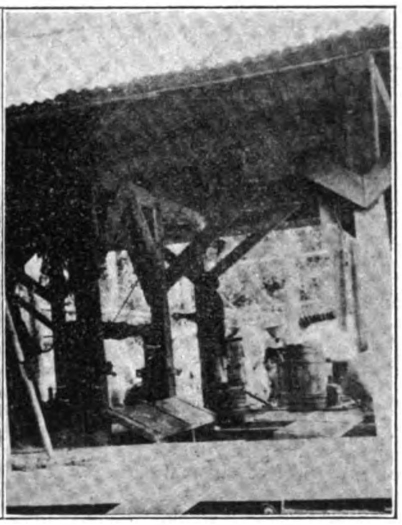
II.—*The application in steel works*:—The use of high grade Ferro-Silicon in Steel Works which is more common than in the foundry, is based on three principal properties of Silicon:

1.—Its influence on the quality of the Steel, which is manifested by greater strength and elasticity.

2.—The capability of Silicon to absorb the gas and thereby render the steel very compact.



HOIST MACHINERY, TAMBAGA MINE



SHAFT HOUSE, TUMBAGA MINE

3.—The calorific effect it produces during oxidation.

Before the high grade electrolytic Ferro-Silicon became known, the low grade Ferro-Silicon, from 10-14% was in general use. This product, unfortunately, contains, besides Silicon, important quantities of Carbon, Manganese, Phosphorus and Sulfur and to the fact that the high grade Ferro-Silicon contains these ingredients in much smaller quantities, may be attributed the preference for the high grade Ferro-Silicon, which was quickly shown by steel works.

It is evident that the finished product will be of greater purity when high-grade Ferro-Silicon is used, not only because the high-grade Ferro-Silicon itself is much purer than the low-grade, but particularly on account of the fact that the quantity of Ferro-Silicon added will be much smaller.

Another disadvantage in employing low-grade Ferro-Silicon is that it is necessary to heat it before adding it to the steel bath, in order to prevent too great cooling of the latter.

In the open hearth system, when there are no special heating stoves, it is the usual practice to heat the Ferro-Silicon on the door sills, and in the basic Bessemer system, for the manufacture of steel rails, the Ferro-Silicon is melted with the Spiegel iron in the cupola.

In all these systems great losses of Silicon are inevitable on account of the Silicon being very apt to oxidize.

The high grade Ferro-Silicon does not require to be previously heated, but may be added in the ladle without loss of Silicon, by reason of its great solubility in the steel bath and of the small absorption of heat.

In employing high-grade Ferro-Silicon, especially in the open hearth system there is a considerable saving of time compared with the use of the low-grade, which requires some time for melting and mixing in the steel bath.

When introducing the low-grade Ferro-Silicon in the stove, it is besides necessary to add a greater quantity than is required, in the finished product, to provide for the loss of Silicon by oxydation and, furthermore, there is a danger of rephosphoration of the steel bath.

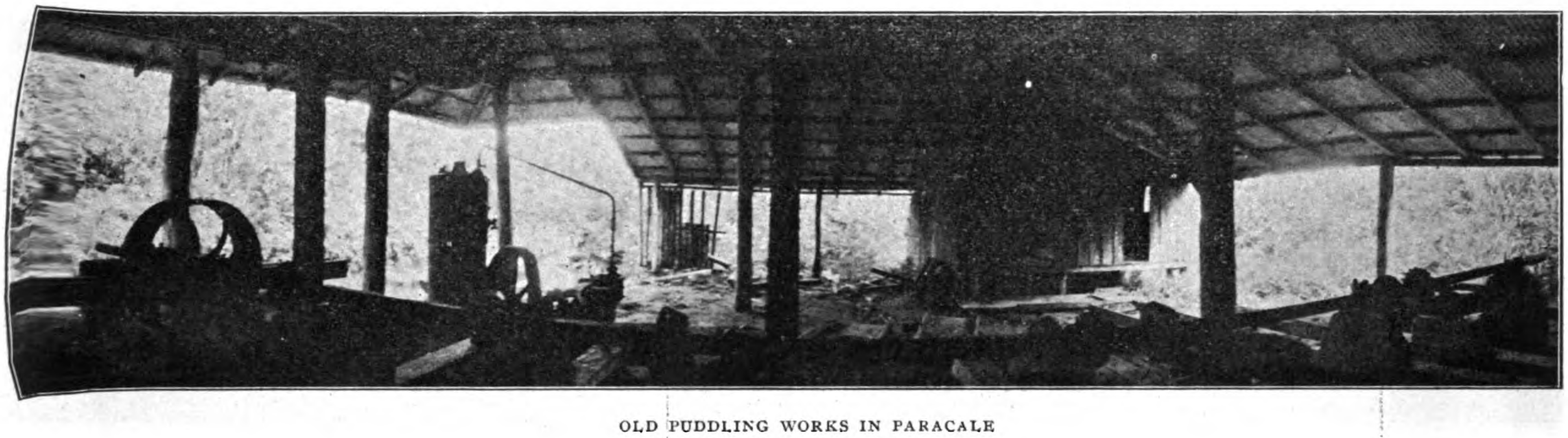
In considering the employment of Ferro-Silicon as heat producer, preference must be given to the high-grade Ferro-Silicon. The quicker the development of heat, the better will be the results. With high-grade Ferro-Silicon there are much greater chances of arriving at satisfactory results, than with the low-grade, On account of the greater solubility of the former in molten iron or in the steel bath, without taking into consideration the fact that less heat will be consumed.

The cost of freight, customs duties, carting and storing in the works will be reduced in proportion to the higher percentage of Ferro-Silicon and if at present prices the unit of Silicon in the high-grade Ferro-Silicon is dearer than in the low-grade, the cost of the unit of Silicon in the finished product will be smaller, taking into consideration all the above mentioned advantages.

GOLD OUTPUTS

Philippine Islands, September

Paracale Gold Dredging Co., 550 ounces; Benguet Consolidated 225 ounces; 321 pounds Cyanide at $18.



OLD PUDDLING WORKS IN PARACALE

WHAT THE NAME "ALBANY" MEANS

Forty years ago Adam Cook established the Albany Lubricating Compound and Cup Company in the City of Albany, N. Y., manufacturing "Albany Grease" and specialties in oils and lubricating devices, and now for seventeen years the entire manufacture of these world wide products have been solely made by Adam Cook's Sons of New York, the firm being composed of the sons of Adam Cook, the originator of "Albany Grease."

The name "Albany"—on lubricants—means that the article is above the common, and that the highest skill known has been employed in the making. It means also that years of experience have served to perfect it.

Adam Cook's Sons now occupy two large buildings located at 313 West St. and 520 Washington St., New York, having increased its output and capacity tremendously since the founder started business in the Albany hole-in-the-wall, at that time supplying a local trade only, while the demand to-day for "Albany" specialties is world wide.

The "Albany" products are pure and adapted to all kinds of machinery in all climates, and are always correctly branded. The trade-mark also the word "Albany" insures this, and these are registered in all countries of the world. Every engineer associates them with the first lubricating grease ever put upon the market, and it still remains to him the first in every respect,—in lubricating qualities, in economy and cleanliness, in its certainty to keep an engineer out of hot box troubles and all along the line in its lasting qualities.

Adam Cook's Sons, who are the only makers of "Albany Grease," attribute the magnitude of their business to the great care that has continually been given the manufacture of their product and in a great measure also to persistent advertising.

"Albany Grease" can now be had from responsible engine and mill supply houses, hardware, oil and auto supply dealers in every country on the globe. Years of experience have been necessary to perfect this advantage.

TENDERS INVITED

TIENTSIN-PUKOW RAILWAY.—SOUTHERN SECTION.—NANKING.—Tenders are invited for the supply of sleepers and crossing timbers, as per the list given below. For delivery from January to March 1908.

A good quantity of sleeper is required, which can be guaranteed to last well in a damp climate. In the case of specially heavy wood it may be arranged to reduce the thickness of the sleeper from six inches to five inches. Tenders might therefore be submitted for both dimensions.

Delivery to be on the Railway wharf at Pukow, free of all charges. Customs duty will be arranged by the Railway.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking, and be marked on the outside "TENDER FOR SLEEPERS." They should reach the Director not later than the last day of October 1908, and will be opened at noon on the following day, 1st November.

The Director does not bind himself to accept the lowest or any tender.

INDENT No. 16

100,000 Wooden sleepers	8'×9"×6"
600 Crossing timbers each	9'×9"×6"
330 " "	10'×9"×6"
300 " "	11'×9"×6"
240 " "	12'×9"×6"
240 " "	13'×9"×6"
120 " "	14'×9"×6"
120 " "	17'×9"×6"

CIE FRANCAISE DE TRAMWAYS ET ECLAIRAGE ELECTRIQUES DE SHANGHAI—4 QUAI DE YANG KING PANG.—The French Tramways and Electric Lighting Company begs to inform the public that in consequence of the completion of its new Central Station which produces all necessary current for the Tramways and Electric Light Service, it is able to offer for sale at the end of October, 1908, the following material:—

1.—Four boilers each of 70 hp. net, with tubing, safety appliances, steam valves, auxiliary pumps, etc. Three of these boilers are of the Thomas Laurens system with fixed furnace. The fourth is a multitubular one made by Messrs. Farnham, Boyd & Co.

2.—Four single-cylinder Corliss engines of 70 h. p. each. These engines are in very good condition and capable of excellent work.

3.—All tubing, joints and valves for boilers, engines and condensers.

4.—Eight multiple-gear dynamos.

The dynamos are coupled two by two, the groups being mounted in parallel lines, and develop current to the extent of 220 volts (at the end farthest from the canalization) for triple wire distribution, the voltage thus amounting to 110 volts on each.

The groups of dynamos can thus be employed at will for a service either of 110 volts or of 200 volts. The dynamos are driven by belts. They have been recently repaired, those of group No. 1 have been lately replaced and the whole collection is in good condition.

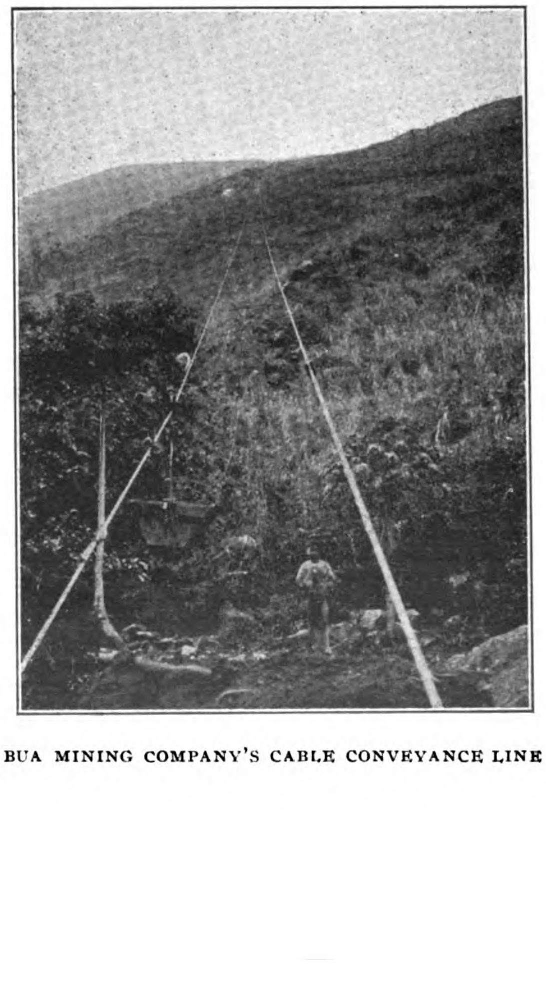
5.—A board of distributing and measuring apparatus: watt-metre indicator, ampere-metre register, volt-metres, registers, rheostats, etc.

6.—A series of spare fittings for the engines, boilers and dynamos.

Persons who wish to examine the apparatus while it is actually in use should address themselves to the General Manager who will be pleased to show them the works.

General Manager,

M. COURSIER.



BUA MINING COMPANY'S CABLE CONVEYANCE LINE

THE WHANGPOO CONSERVANCY

The following is the report of the progress of the work on the Whangpoo Conservancy submitted by Directors H. E. Hobson and Ts'ai Nai Huang of the Whangpoo Conservancy Board for the quarter ended June 30th, 1908:

SIR,—In accordance with the stipulations of article 4 of the agreement signed in Peking on the 27th September, 1905, regarding the establishment of a Board of Conservancy for the Whangpoo river and with reference to our report of the 14th May and previous ones to the Consular Body on this subject, we have now the honor to present the following statement regarding Conservancy Work during April, May and June 1908:—

2.—STAFF . APPOINTMENT, CHANGES, ETC.

(a) *Foreign Staff.*—Messrs. A. Nederlof (Dutch), F. E. Gram and T. O'Hare (British) were appointed during the quarter; Messrs. Kalbein and Davis left the Board's employ.

(b) *Native Staff.*—No important changes,

3.—PLANT.—A new launch, the "Limin." was added to our fleet at a cost of Sh. Tls. 9,300, built by the New Engineering Shipbuilding Works, Limited.

4.—HOUSES.—The final payment was made for the house in the French Mail compound at Woosung.

5.—The following details are from Mr. de Rijke's quarterly report to the Conservancy Board:

During the quarter the principal seat of operations in stream training—in connection with the powerful night and day dredging now progressing—has been at the upper end of Gough Island. The Junk Channel Bank opposite there, now overgrown with rushes, had increased in height to nearly 7 feet above low tide, with the result that the whole stream of the river at Kejow tended more than ever before to flow into the ship channel. To reverse this a great deal has already been done, especially by training work as stated in the report, but it will be necessary during next quarter to proceed with the works with undiminished energy. A way for the stream (not yet for shipping) having now been made along the whole length of Junk Channel, I hope soon to have all three bucket dredges at work on the bank at the head of the channel.

WOOSUNG OUTER BAR TRAINING WORKS, CONTRACT I.—Actual work done during the quarter:

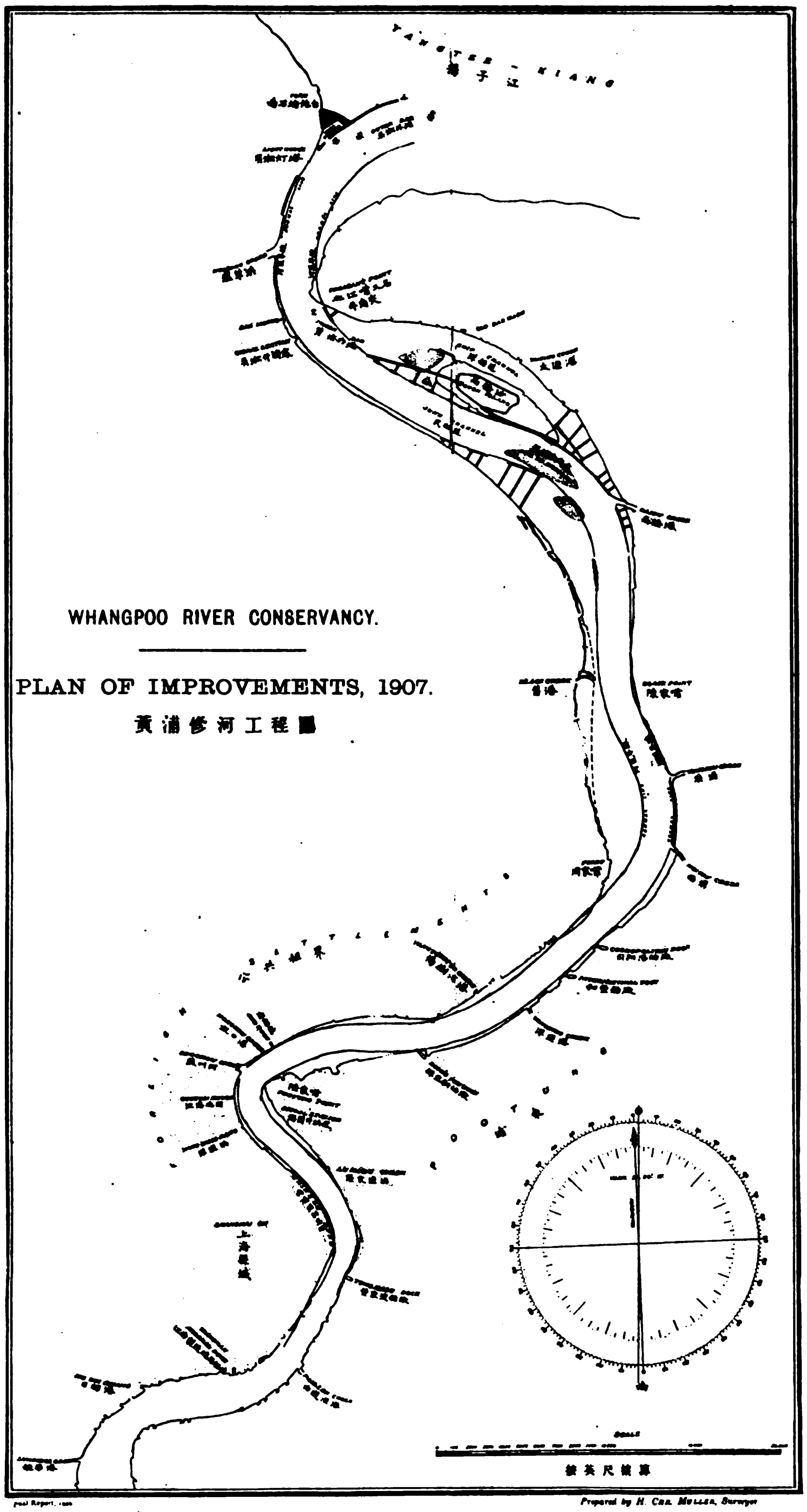
	sq. yd.
Jetty—Bottom layer of zink-stuks of G construction	10,800
Jetty—Bottom layer of zink-stuks B contruction	1,440
Second layer C	11,190
Second layer B	13,639
This quarter	87,069
Previously	13,190
Total to date	46,259

This completes the bottom layer over its whole length 4758 feet, or 38 feet beyond the gabbioni work ending in the original design. The second layer is complete over a length of 3210 feet, the end of the second section.

TRAINING WORK AT PRINCE'S WHARF—

Third layer of zink-stuks of A construction	5,395 sq. yds.
Previously laid	9,994 "
Total	15,389 "

which completed the zink-works in this training work over its whole length of 680 feet. Piling: 131 50-feet piles were driven through the basework of zink-stuks in three rows on south side over a length of about 180 feet. The crib-work at Prince's Wharf connecting the training work with the shore has been raised to about its full height as designed but its upper part by a temporary construction only, at the contractor's expense, as a landing stage for stone transport.



SOLIDIFYING ZINK-STUCKS.—Sandy soil dredged from Junk Channel (Dredging Contract) deposited on the above mentioned zink-stuk

stuk	13,164 cub. yds.
Previously	13,779 "
Total	26,943 "

Much greater quantities will soon follow.

SEA DYKE.—Second layer of zink-stuks

of A construction	189 sq. yds.
Previously laid, bottom layer	5,193 "
Total	5,382 "
Fascine mattress work	1,101 "
Previously	1,692 "
Total	2,793 "

which completes the first layer over a length of 930 feet from the shore.

FILLING:—Piles 18-feet long driven this

quarter	499 pieces
previously	300 "
Total	799 "
Piles 15-feet	243 "
Previously	258 "
Total	501 "

Clay and earth filling in and behind the sea dyke was continued with a small railway as before. Rubble stone on sea dyke: besides the stone used as ballast for the zinkstuks, other masses of rubble stone are being thrown on the sea dyke, firstly as top ballast to settle the body of fascine and clay, secondly for roughly pitching the dyke's sea slope according to the plan.

Work Harbor Bunding: Bottom layer of zink-stuks of A construction 2089 sq. yds.
Previously laid 1212 "
Total 3301 "

The bottom layer is now completed over its whole length of 1593 feet. This layer of zink-stuks partly exposed to the air at the lowest tide is being solidified and covered with soil taken from the shoal inside.

PLANT IN USE BY CONTRACTOR

2 Big Pontoons	2 Small Pontoons
1 Tug boat	4 Anchor Boats
1 Sampan	2 Hand Pile Drivers.

LABOR EMPLOYED

2 Dutch Superintendents	2 Ningpo Foremen Fascine Workers
18 Dutch expert sinkers	40 Ningpo Fascine Workers
10 coolies foremen	10 Ningpo carpenters
310 coolies and boatmen	

	Days wages Natives.	Workable Days.
April	6970	21
May	9889	22
June	11370	22

DREDGING WORK CONTRACT ROLL.—Dredging in Junk Channel continued day and night, interrupted now and then mainly by increased currents. The bucket dredgers at work are moored with the bow river downward, and when ebb tides run strongly the loaded buckets run empty as they rise to above water. On account of this the machines have to stop work for an hour or so, sometimes for more than two hours at a time. That such interruptions are gradually increasing, as foretold, is in itself a sign of the progress of the work. The following dredgers were at work: "Colonia" at the end of last quarter; this bucket dredger had made a furrow 6000 feet long, about 300 feet wide and 15 deep at low water. This was continued to Old Upper Base where on the 3rd June deep water was reached a distance of 10950 feet from the first starting point near Upper Gough Island. On the 4th June the "Colonia" was shifted to a point opposite Kajow Creek and from there downward started dredging a channel of the same width and depth. By the end of this quarter she had advanced about 2100 feet, to a point where Junk Channel Bank is overgrown and has a height of over 6 feet above low water. The wall of soil in front is thus at present more than 21 feet high so the advance during the next few weeks cannot be great. The "Rhenania" during the quarter advanced 2050 feet and is now connecting up the Colonial Channel with the old Channel on the left side above Limit Beacon. There are ten or eleven feet of water on the down river spit still to be dredged, so the end will soon be reached. The suction dredger "Cycloop" was all the time stationed as in the preceding quarter at Upper Gough Island to pump matter dredged from the mud barges on to the Island. When the pipe line had been extended to a distance of 1350 feet pumping up became too difficult and had to be stopped, but the works at the upper end of Gough Island were sufficiently advanced to form a spacious enclosure (for the new pipe line to discharge into) between the two parallel dam works and cross dams at Upper Gough Island. This place of deposit is near where the Cycloop lies and within easy reach, especially for night work of the dredgers on the Junk Channel Bank right opposite. On May 12th two other dredgers reached Shanghai from Holland, a bucket dredger, the "Shanghai," in all respects similar to the "Colonia" and "Rhenania" and a suction dredger, the "Canton," which has at least the same capacity as the "Cycloop." Both vessels had to dock after the long sea voyage. The "Shanghai," ready for work, came down to Junk Channel on June 4th and commenced dredging on the right side nearly opposite Limit Beacon, widening the dredged channel so as to obtain access for the "Canton" and the mud barges to the pipe staging built out by the contractor from the lower end of Gough Island. This temporary staging is about 1100 feet long and extends 400 feet outside the right normal line. The water here being too shallow for loaded barges and tug boats, dredging could be done at first only during high tide. It was the 24th June before the "Canton" could take up her position at the staging and pump the matter, hitherto dumped elsewhere, on the Gough Island. Clay works surrounding large spaces for depositing were built at the Contractor's expense near Lower Gough Island.

The quantities dredged so far as measured in barges are:

	(1)	(2)	(3)
By "Colonia"	601,873	621,095	1,222,967
By "Rhenania"	654,387	548,107	1,202,494
By "Shanghai"	97,639	——	97,639
Total	1,353,898	1,169,202	2,523,100

Those quantities of silt were deposited

	(1)	(2)	(3)
By pumping the matter on Gough Island	774,168	769,803	1,543,971
By pumping in mass on and between the training works	579,730	399,399	979,129
Total	1,353,898	1,169,202	2,523,100

(1) In this quarter, cubic yards.
(2) Previously, cubic yards.
(3) Up to the 30th June, cubic yards.

The total quantity of dredged matter pumped, 1,543,971 cub. yds., was distributed amongst the dredgers as follows:

By the "Canton" at Upper Gough Island 1,494,162 cub. yds.
By the "Canton" at Lower Gough Island 49,809 "

The rest of the dredged matter, i. e., 979,129 cub. yds., was dumped in mass on and between the training works (as stated in the monthly reports). Considering the sticky sandy nature of the soil and the occasional hard knocks of the buckets against invisible obstacles—telegraph cables amongst them—submerged in the river bottom, the above figures show the great strength of the dredging machinery.

The depth of water in the dredged route was at the end of June nowhere less than 12 feet at low water over a width of more than 400 feet, except at Upper Gough Island to the right of the Junk Channel Bank where the 12-foot channel in the narrowest place was only 330 feet wide with, however, the much greater depth of over 30 feet in the middle. The Junk Channel Bank is already decreasing by "scour" as well as by dredging especially during ebb tides, though the flood tides passing over the lower end also affect it. The scour of the bank by ebb-currents is perceptibly increasing as the training work above Upper Gough Island progresses. The matter scoured from the great bank, as well as the quantities of soil falling away from the sides of the newly dredged channel, flows at once into deeper water and is transported by the current along the dredged channel where part of it, of course, settles as the currents slacken. Thus, under present conditions, we have in Junk Channel a fairly increasing scour (see current observations), and on the other hand extra settling of matter along the dredged channel, which may temporarily continue until the matter, set in motion on the shoals, can reach the concave below Limit Beacon which is being extended by the Outer Bar works down to the Yangtse. New soundings taken at the end of June show that the scour already has the upper hand though not as yet to any great degree. Much must still be done before regular deepening by nature only can be expected.

CURRENT MEASURED VELOCITY IN FEET PER SECOND. (1st July 1908, 28th June 1908 and 10th April 1907.)

	Junk Chan.	*Ship Chan.*	*Junk Chan.*	*Junk Chan.*	*Ship Chan.*	*Ship Chan.*
6 a. m.	2.98	—	4.02	3.33	8.00	4.40
7 a. m.	4.08	—	3.68	3.03	1.00	4.40
8 a. m.	5.00	3.73	1.05	0.93	—	1.50
9 a. m.	5.20	2.63	2.60	1.61	1.80	1.50
10 a. m.	3.47	3.45	2.23	2.50	2.50	3.80
11 a. m.	3.61	3.00	2.00	1.30	2.70	2.40
12 noon	1.82	0.78	0.78	0.45	1.80	1.60
1 p. m.	3.48	3.23	—	0.47	1.60	—
2 p. m.	2.65	2.13	2.17	1.60	1.40	1.60
3 p. m.	1.67	0.96	2.73	2.50	1.10	2.70
4 p. m.	—	—	3.32	2.60	1.50	4.40
5 p. m.	1.95	1.40	3.60	3.23	1.90	4.70
9 p. m.	2.40	2.50	4.12	—	1.70	4.90

The 1st July, 1908, was a spring tide, 26th June, 1908, neap tide, 10th April, 1907, a neap tide. The place of measuring velocities was on each occasion in both channels nearly opposite middle Gough Station.

PREPARATIVE WORKS.—Clay walls have been built at contractor's expense around the spaces of low land at the lower end of Gough Island to be filled with dredged matter pumped up by the "Canton." The old opium hulk "Wellington" was purchased by the Contractors and moored on the Ship Channel side of Upper Gough Island to be used as quarters by the men, and as a storehulk.

PLANT IN USE

2 Bucket Dredgers	2 Suction Dredgers
10 Mud Barges	1 Coal Barge
4 Tug Boats	1 Motor Despatch Boat

LABOR

2 Foreign Superintendents	
18 Foreigners and	48 Chinese on Bucket Dredgers
14 Foreigners and	24 Chinese on Suction Dredgers
4 Foreigners and	36 Chinese on Tug Boats
	60 Chinese on Mud Barges
	5 Chinese on Coal Barge
38 Foreigners	173 Chinese.

also a varying number of Chinese as earth workers, pipe layers and carpenters.

WORKING DAYS

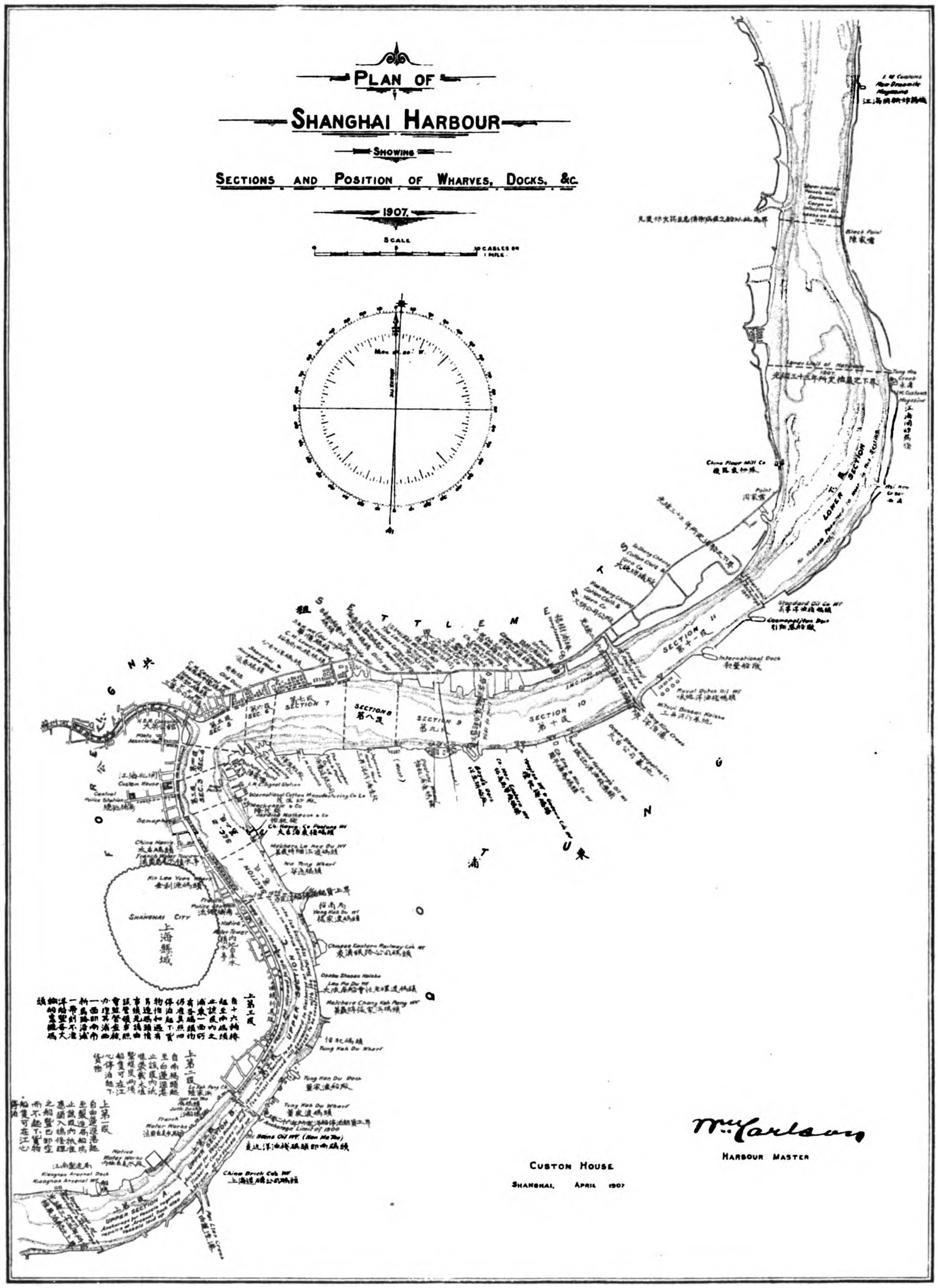
April 25
May 24½. Sundays and Holidays 17½
June 24

Total 73½. Bad weather days Nil.

In use by Conservancy Office for dredging control: 1 pinnace and 2 new boats.

WORKS UNDER OUR OWN ADMINISTRATION.—
(a) Gabbioni dumping:

	Gabbioni.
In double crib-work at Salient (crib E)	20



In triple crib work at Dyke end (crib C)	13
In double crib-work at Storm (crib A and B)	2,958
In triple crib-work at Kajow (crib A and C)	760
In training work at Upper Gough	6,165
Total	9,925
Previously	19,170
Total	29,095

(b) Sink Work

Zinkstuks sunk this quarter	s. yds.	Total. sq. yds.
In parallel dam Lower Gough	4,563	49,427
In elbow dam Lower Gough	——	6,624
In cribs Lower Gough (crib B)	500	2,746
In double crib work Limit Beacon (parallel)	2,260	4,820
In double crib work Salient Beacon	6,459	10,939
In training work Upper Gough	47,583	115,209
In crib work Pheasant Point	630	630
In crib work Dyke End	——	3,623
In crib work Kajow	——	3,753
In shore defence, Barmark	——	2,114
Total	61,994	199,882

(b) Laag work: (Layers of Brushwood above low water fixed by fences).

	sq. yds.	sq. yds.
Parallel dam Lower Gough	14,677	19,682
Elbow dam Lower Gough		6,420
Cribs Lower Gough (Crib I C)		200

Training work Upper Gough (in normal line)	5,269	5,629
Training work Upper Gough (mark pile 9)	180	180
Total	20,126	32,111

PROGRESS IN TRAINING AND RESTRAINING THE STREAM

(a) Parallel dam below Gough Island:

This long dam has been extended with a bottom layer of Zinkstuks to a length of 4607 feet from the shore of this island. Raised to above low water over a length of 3043 feet, and higher with laag-work clay and stone to 2893 feet from the island. The top of the laag-work inclines from 10 to 7.5 feet above low water.

(b) Elbow dam was raised to about 8 feet above low water over a length of 630 feet.

(c) Crib-work Pheasant Point from the Pootung shore below the point, this work has just commenced with one Zinkstuk in the bottom layer.

(d) Training work Upper Gough Island:

In order to deflect still more of the ebbstream into Junk Channel this great work has been proceeding with the utmost speed. The parallel work on Junk Channel side itself a very formidable dyke, formed under water of strong Zinkstuks only, is being extended farther than at first intended for two reasons, firstly, because sinkwork right across the stream of Ship Channel as indicated in the plan as well as in the triple cribwork just below Kajow Creek has been found too dangerous for the sinkers and their native helpers as long as shipping is passing there; secondly, because the longer the dam the more it overlaps the upper end of the Junk Channel Bank just opposite and increases the deflection of the stream in the desired direction. At the end of June was made (see annexed sketch) a bottom layer of zinkstuks 40 yards broad, along the normal line extended to 850 feet past mark pile No. 1, i.e. 2930 feet distant from Gough Island. The depth of water there was about 27 feet at low water: the second layer of zinkstuks, 28 yards broad, has also been made to 212 feet from mark pile No. 1. On these successive layers from 27 to 10 yards in breadth, to above low water (always forming a slope downwards at the end) to 75 feet from that mark pile. Where the depth of water is 26 or 27 feet above low water the whole cross section consists of 13 layers of zinkstuks together 285 sq. yds. per yard in length in which are used nearly 4000 bundles of brushwood besides masses of rubblestone. Such a construction can withstand the strongest currents ever seen in the Whangpoo, but on account of the stream now rushing over the end of the work like a rapid the sinking of large zinkstuks has to be stopped at spring tides.

Laagwork to a height of four feet above low water was made to about 1400 feet from the island. A rubble wall on the top ballast 11 feet above low water was roughly built up to 440 feet from the island. This wall is intended firstly as top ballast to settle the body of the dyke; secondly to form an enclosure behind it for dredged matter pumped up. The effect of the extension so far is strikingly noticeable from the soundings in Junk Channel along the dyke. At the end of April last there was a depth of water in the middle of the channel between mark piles 1 and 4 of less than 12 feet, by the end of June we found in the same place over a length of about 900 feet a depth of from 16 to 25 feet at low water the increase being obtained by scour alone. The parallel dam of the same work on the ship channel side was built up by dumping gabbioni on a bottom layer of one zinkstuk; for a length of 1700 feet from markpile No. 9 it was raised to about two feet above low water and on this a rubble wall, 11 feet above low water in height, was completed over a length of 600 feet. The cross dam from markpile No. 9 to the Gough Island shore was built and completed in the same way. The cross dams between markpiles 2 and 12 and 4 and 11 were raised to a little above low water. The space of water enclosed by stone walls to above ordinary high tide at first shallowed by dumping matter from the mud barges has since the 29th June been receiving dredged matter pumped into it by the "Cycloop." Nearly all the sinkworkers and most of the gabbioni dumpers being required to push on this important training work, not much could be done with the other cribworks at Kajow, and on the left bank of the river. At "Storm" opposite Kajow, however, 2958 gabbioni were dumped, by which this work reaching about 2400 feet from the left shore was raised to above low water practically stopping the stream on that side.

PLANT IN USE

5 pontoons for gabbioni dumping	3 tugboats
2 steam launches	28 cargoboats, small boats, etc.

Workmen employed: (Chinese).

Boatmen, fascine workers, carpenters, watchmen, foremen and coolies:

In April 322 men or 9670 days' wages.
In May 367 men or 11007 days' wages.
In June 358 men or 10753 days' wages.

MATERIALS

	In stock 1st April	Arrived and acctd. during quarter
Bundles of Brushwood	353,258	1,498,000
Bundles of Stakes	28,324	—
Piculs of Reeds	655	7,968
Bamboo Baskets	845	9,185
Ballast Stone (tons)	6,795	40,359
Poles of different lengths	2,687	—
2 thread native hemp rope, feet	73,500	660,000
27 thread native hemp rope, feet	2,300	12,600
Galvanized iron wire (lbs)	7,030	37,348
Seizing wire (lbs)	5,002	28,180

	Used during quarter	In stock 1st July, 1908
Bundles of Brushwood	1,707,823	143,439
Bundles of Stakes	15,194	13,130
Piculs of Reeds	8,249	374
Bamboo Baskets	9,925	105
Ballast Stone (tons)	40,467	6,687
Poles of different lengths	128	2,559
2 thread native hemp rope, feet	52,000	181,500
27 thread native hemp rope	12,900	2,000
Galvanized iron wire (lbs)	42,917	1,461
Seizing wire (lbs)	33,182	—

CHANGES IN JUNK CHANNEL between the normal line during the last 9½ months up to the 1st July 1908.—The distance between the normal lines at Kajow is 1960 feet, from there downwards the width gradually increases so that at Old Upper Base it is 2130 feet. To ascertain in the most accurate manner possible the alterations effected so far by dredging and training operations the whole field of the Junk Channel between the normal lines was divided into squares of 100 by 100 feet that is 1-2 inch squares on the standard map with a scale of 1:2400. In each square 2 soundings were filled in, one taken from the survey made in the middle of September 1907, the other from soundings made towards the end of last June.

All soundings reduced to low water.

The following was found (see chart):

1st Section, from A crib at "Storm" down to "Upper Gough" covering about 925 squares, which includes the upper or highest part of the Junk Channel Bank, 1,065,000 cub. yards of sand and silt were removed, of which 529,208 cub. yds. were removed by dredging, 535,792 cub. yds. by scour.

2nd Section, from Upper Gough to Salient covering about 720 squares and including the lower or tail end of the Junk Channel Bank: 1,234,000 cub. yds. of matter were removed, 950,709 cub. yds. by dredging, 283,291 cub. yds. by scour.

3rd Section, from Salient to Limit Beacon covering about 840 squares: 460,000 cub. yds. were found removed, whilst 693,702 cub. yds. were dredged showing a negative result, due to silting, of 232,702 cub.yds.

4th Section, from Limit Beacon to Old Upper Base covering about 735 squares. Here the result was a loss in depth amounting to 60,000 cub. yds. of silting, against 290,148 cub. yds. removed by dredging.

Although the results in sections 3 and 4 is on the negative side, the silting here was almost entirely on the shallows, the through depth in the desired direction was much increased and is still increasing.

The total result over the whole area of the four sections (3220 squares of 100 by 100 feet) is:—

	cub. yds.
Total amount of matter removed	2,699,000
Removed by dredging	2,463,767
Removed by scour	235,233

Below Upper Base down the "Signal Station" 109,000 cub. yds. were removed by scour without any dredging owing to the concavity of the Woosung which commences at Old Upper Base and prevents matter set in motion higher up from settling there. It must also be remembered that when dredging commenced last December at the upper end of the Junk Channel Bank silting was still rapidly proceeding in Junk Channel while Ship Channel was increasing in depth. From Salient downward dredging with one machine only began at the end of February, so we have to allow here for silting from September 1907—the date of the first set of soundings compared—to March 1908 or nearly half a year. Dredging itself also generally causes, at least temporarily, more or less silting lower down as for instance the Junk Channel Bank which is overgrown and nearly 7 feet below water, which means, as we dredge to 15 feet below low water, a steep bank on one side of 22 feet in height. With a strong ebb tide rushing against this the sides naturally fall away, large lumps of soil plunging into the stream to dissolve and be deposited lower down. The same thing on a smaller scale is seen lower down when dredging the shallows below Junk Channel Bank, but on the whole I may repeat what I said in the last Quarterly Report "in Junk Channel scour already has the upper hand."

SURVEY.—The following remarks are taken from the survey report for the three months April, May and June; the mouth of the river was resounded from Pheasant Point to Fort Jetty over the shoal to deep water, sounding lines run 300′ apart. The coast line from 2 stone along the Yangtse was measured for about 4000′ and sounding lines run for every 300′ out to deep water. A new survey was made of the Junk Channel from Storm to Old Upper Base in April, sounding lines run 300′ apart. Shallow soundings by actual measurement were taken, 7 lines between the Conservancy house and signal station at Woosung, 5 lines twice at Upper Gough Island to see if the mud bank was cutting away, 10 lines across the ground at Lower and 19 lines at Upper Gough Island; 16 sounding lines were run between the normal lines from Dyke End to Storm, at the end of May, to locate a new place for the Dredger to start from and the direction in which to dredge.

The positions of the red and black light in Ships Channel and of some piles at Upper and Lower Gough Island were fixed, also of the Spit Buoy at Woosung Forts.

New tide gauges were placed in Junk Channel and at Prince's Pier, and their zeros fixed by levelling from stations ashore. A new dyke for retaining mud at Upper Gough Island was measured. Ship Channel was resounded in June from Kajow Creek to Pheasant Point and 7 sounding lines parallel with the Bar line run twice over the Inner Bar to see if the depth was changing. Junk Channel was also resounded, and sounding lines run 300′ apart. All those surveys were plotted and tracings sent to the Engineering Department. Most of the shallow soundings were plotted on square paper to show the cross sections.

6.—EXPENDITURE.—A statement showing receipts and expenditure for the Quarter under

review is enclosed, supported by the necessary vouchers.

We have the honor to be,
Sir,
Your obedient servants,
(Sd.) Ts'ai Nai Huang.
(Sd.) H. E. Hobson.
Directors of the
Whangpoo Conservancy Board.

D. Siffert, Esq.,
Consul General for Belgium
and Doyen of the Consular Body.

STATEMENT OF RECEIPTS AND EXPENDITURE DURING JUNE QUARTER, 1908.

	Hk. Tls.	Hk. Tls.
RECEIPTS		
Balance from March Quarter, 1908		69,472.01
A Superintendent; on account Grant	500,000.00	
B Unclassed; sundry receipts	699.24	
C Gain by Exchange	1,312.96	
Total net Receipts, June Quarter	502,012.20	502,012.20
Advances repaid		376.20
Total		571,860.41
EXPENDITURE.		
1—Salaries	34,038.93	
2—Transport	158.11	
3—Rent	2,088.80	
4—Plant: Cost and Maintenance	11,287.85	
5—Houses, Furniture, &c	727.71	
6—Ordinary: stores, &c. Miscellaneous	787.55	
7—Conservancy Works	457,840.75	
8—Loss by Exchange	....	
9—Special Payments	37.07	
Total next Expenditure, June Quarter	506,966.86	506,966.86
Advances, lent		376.20
		507,343.06
Balance carried forward		64,517.35
Total		571,860.41

Prepared by:
A. G. Carruthers,
H. E. Hobson,
Commissioner.

*THE PAST AND THE PRESENT OF THE DAIYA MINE IN CHINA

Originally this mine was worked by Germans, but through the efforts of Dr. Nishizawa, a mining expert, the entire business was practically transferred to the hands of the Japanese. We are highly delighted to note such distinguished ability as that of Dr. Nishizawa in furthering the peaceful interests of Japan. The appearance of men like Dr. Nishizawa for our country is a matter of great importance. Before going further let us dwell upon the service rendered by Dr. Nishizawa. In 1890, Cho-shi-tan, the viceroy of Ho-ming, planned to establish the largest iron foundry in the Orient, and instructed his men to make careful investigations. The viceroy was induced to make an investigation of this kind by reading a Chinese history where the "sword of Daiya" is mentioned, and after a great deal of study came to the conclusion that there must be some advantages in the province of Daiya where mines may be properly worked. He employed a German expert, through whose keen observation a large iron mine was discovered, which has ever since been known as the Daiya mine. Instead of informing Cho-shi-tan of this discovery, the German expert immediately cabled to the German Government which lost no time in negotiating with the Peking Government for the mining rights and the construction of railways, but the strong opposition of the viceroy thwarted the object of the Germans, but the latter exacted a promise that they should make a contract for the supply of all the machinery and experts wanted. This paved the way for the present influence of Germans in Chinese mines. The iron ore debris accumulating around the historic ruin of the Daiya iron gate might with advantage be employed for various purposes. When the Japanese Government made a contract with the Chinese to make a purchase of this mine, the Germans offered to buy from China this iron dust at the rate of 6 dollars 50 cents per ton, hoping thus to prevent to the formation of this contract and obstruct the work of the Japanese, but through the strong opposition of Dr. Nishizawa they were foiled in their attempts. Arrangements are being made to plant trees in the neighborhood of the Daiya mine so that before long a thriving prospect for vegetation will be discovered. The fact that the mine is full of promise can not be denied.

*Japan Financial and Economic Monthly.

The success in leasing the Daiya Mine naturally must be attributed to efforts of Dr. Nishizawa, but the ill feelings entertained by the Chinese authorities towards the selfishness of the Germans must have greatly assisted the speedy execution of the event. The Daiya railway is the only means of communication that is used for the mine. This railway was projected by Germans extending for the period of 1890, 1891, and 1892. Sleepers, railways, repairing tools and other materials have all been imported from Germany. The Daiya Mining Bureau was established at this time under the presidency of the Chinese, but Germans occupy important posts in connection with this Bureau while the circuitous routes of railway lines show that the mere lengthening of the lines was a primary object of such railway construction. Had the Japanese been engaged in the construction of the line from the beginning, certainly a wasteful system would not have been adopted. It appears that the ambition of the Germans is clearly understood. The Kan-yo iron foundry was projected in 1891 in connection with the Daiya Mine, and it was to have been built by the Belgian syndicate, and was to have been completely controlled by Belgians, but in 1894, loans had to be made from the German Bank; thus German experts took the place of the Belgians, but the Germans were not amenable to directions of Cheng-shi-tung so that finally the Chinese viceroy had to refund the money in the aforesaid Bank and at the same time he employed Belgian experts. Thus friction arose between the experts of the two countries; meanwhile it appears Dr. Nishizawa took the advantage of the situation in obtaining contracts in connection with the Daiya Mine.

In 1895, because of the various financial difficulties arising in connection with the Japan-China war, Chang-shi-tung decided to sell the iron foundry to a certain foreigner, but the Government did not permit it on the ground that there would be a great need for such iron foundry. Under the circumstances, the minister of commerce and railways and the governor of the Chinese telegraphic Bureau who had a great influence in every way brought this iron foundry under his control. In 1897 when peace was restored with China, Ito and Inoue, the two elder statesmen, entered into contract with the Chinese Government in connection with the Daiya mine so that on April 7th 1899, the so-called 5 years' contract was drawn up and Dr. Nishizawa was charged to see to the execution of this contract. At this juncture, the boxers trouble in Peking stirred up the whole country, coolies, filled with anti-foreign spirit, disobeyed the orders of foreigners and the German experts had to flee to Shanghai. Nothing daunted, Dr. Nishizawa devoted himself to the execution of his project, and at last succeeded on June 30th 1900 in conveying 1600 tons of iron on the Akuura maru from the Daiya Mine, leaving the harbor on July 4th. This accounts for the importation of iron ores to our country. Dr. Nishizawa established an office in Daiya and in spite of the Germans and a certain section of Chinese concluded the Daiya treaty in June 1904, after repeated conferences which enabled him to work the mine. This was only a fortnight before the outbreak of the war and thus Japan was well equipped with iron supplies during the time of the war in making rails, shells and other warlike weapons. It was with the material from the Daiya mine that Japan was able to build large warships by her own resources. Thus Russia in June 1904 declares that China was violating the neutrality by exporting iron from the Daiya mine to Japan.

*NEWLY OPENED MI-IKE HARBOR

On April 7th under the Imperial ordinance 75, the opening of the Mi-ike harbor was announced, the Mi-ike county, in the Southwestern part of Chikugo province and forms a part of the Ariake bay, which is situated at a point 40 miles north east from Dezu-mina which forms a chief port of export for Mi-ike coal. The construction of the harbor was completed by the Mitsui mining department expending the sum of 3,000,000 *yen*. At Mi-ike port Ariake bay is over shallow and sandy so that several miles must be traversed before deep waters are reached. Thus the harbor consists of three sections—the internal, external harbors with a passage between for vessels.

The Internal Harbor.—The internal harbor is intended for the conveyance of coal and goods and the area of the water surface is 28,000 *tsubo*, and the depth is 18 feet at ebbtide. The pier has 162 feet frontage which provides ample space for docking larger vessels. The inside of the dock is provided with water gates to keep the depth of water not less than 20 feet, which in full tide reaches 38 feet.

The banks along the eastern side of the dock extend some 1,380 feet and 3 vessels of ten thousand tons each can be anchored at the same time. In the future, it may not be difficult to find space for the anchoring of 9 vessels. The height of the breakwater is 11 feet 6 inches faced with granite, and there are provided scores of iron stanchions and three cranes.

The width of the waterway is 66 feet and the depth 18 feet while copper bound iron gates connect the waterway extending 415 *ken* (a *ken* is equal to 6 feet). The outside of the harbor is delimited by stone walls for a distance of 600 feet on the eastern side, and two wings stretching south and north giving it the shape of a cylinder. The area is 150,000 *tsubo*, but the work of dredging this space requires a considerable time and money. For the time being, a roadway 150 feet wide will be built in the centre of the harbor, for the distance of 1,000 *ken* (a *ken* is 6 feet) and at a depth of 18 feet during ebbtide with the banks built to keep off the breakers and sands, the distance between the banks being 450 feet.

It appears as though Mi-ike harbor is owned by the Mitsui family, having been built at their expense, but it will at the same time contribute a great deal towards the public convenience.

Some of the benefits arising from the building of this harbor are as follows:

1. The people in the neighboring districts will derive considerable benefits either from the use of their labor or from the manipulation of capital.
2. The city will grow up around the harbor.
3. The cheap freights will lower the price of commodities, affording a considerable help to the people.
4. The commercial and industrial prosperity arising from the building of the harbor will lead to their national wellbeing. They greatly affect the condition of Kotsu-harbor which will lose its business because the whole work will be taken away by the new arrangement. The following figures give the amount of business done in this connection.

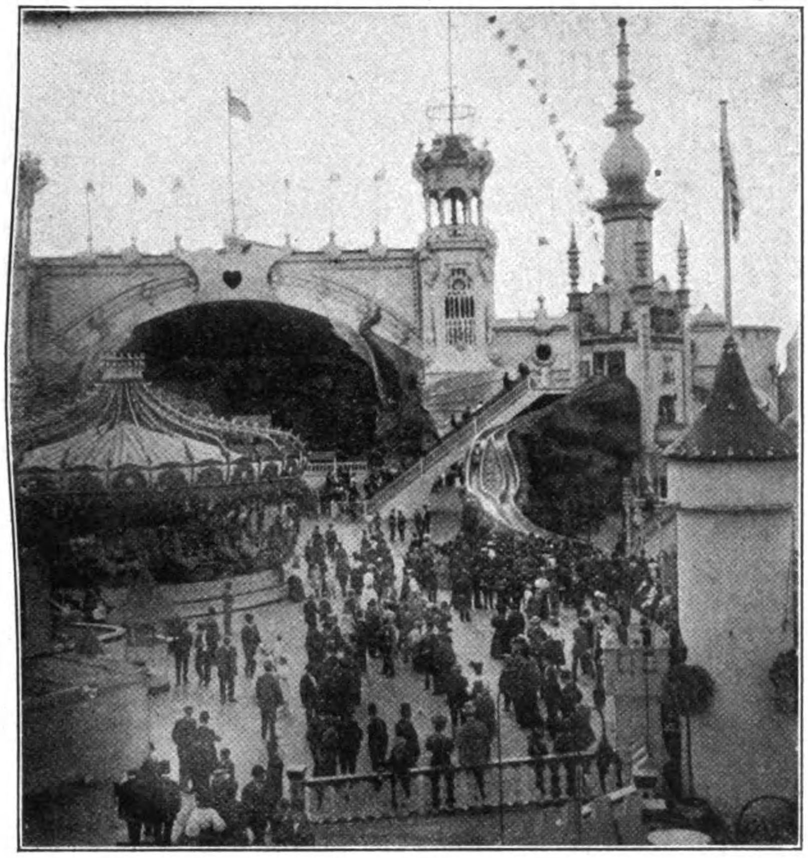
Years	Exports	Imports	Total.
	yen	*yen*	*yen*
1903	4,743,061	409,968	5,153,029
1904	4,878,136	809,147	5,687,283
1905	4,786,040	247,364	5,033,404
1906	4,356,322	146,021	4,502,343
1907	4,908,868	307,992	5,216,860

Thus it will be seen that the Ko-tsu harbor has nothing to do with importing, its chief business being that of export. During 1906, coal took up 97 per cent of the total export from the harbor. Thus it will be seen that the fate of the Mi-ike harbor will depend upon the output of coal from the Mi-ike mine. In fact this harbor may be superior in every way to that of Nagasaki or Moji when fully developed.

* Financial and Economic Monthly.

MANILA'S CONEY ISLAND

The installation of a modern amusement park in Manila, where all classes may have recreation, is the object of the Palomar Amusement Park Company, capitalized in Manila, at ₱300,000, the incorporators of which are Messrs. Mauro Prieto, Luis Hidalgo, R. C. Baldwin, M. A. Clarke, Leopoldo Kahn and Carl Hess, all businessmen of Manila, and R. J. Louis of New York City. Mr. Louis has been identified with the growth of the amusement features at the famous Coney Island and will be managing director. The plans have been practically concluded for the initial work. Mr. Louis is expected shortly and Mr. Art. Poole, an expert electrical engineer, is in charge of the preliminary work until the arrival of Mr. Louis.



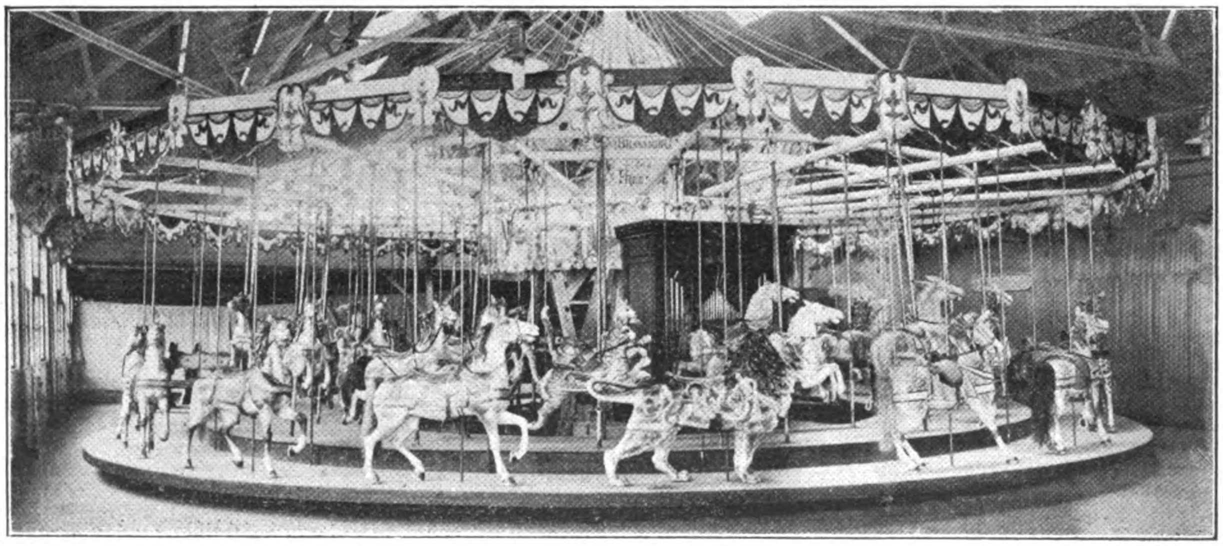
THE HELTER SKELTER

The company has secured 50,000 square meters (about 12 acres) of land situated conveniently in the district of Tondo, the area covered being known as the Island of Palomar. Of this area four acres are now available and will be utilized for the initial attractions. From time to time, the features of amusement will be increased and kept to date, until the entire area is included in the park proper.

The dearth of amusement in Manila of a healthy character appealed to the promoters of this enterprise as the opportunity for a most desirable investment, and in going over the situation, it was decided to give the public an aggregation of attractions similar to those that feature Coney Island and at a cost that would place the park within the reach of all. The intention is not only to make the park attractive but to guarantee the patrons an opportunity for diversion under the most favorable and pleasing conditions. The entrance fee to the grounds will not exceed ten centavos and special features will be charged for at similar reasonable rates. The strictest surveillance will be maintained so as to protect patrons from the slightest annoyance and family parties will be encouraged.

Some idea may be gathered of the attractions by the illustrations which accompany this article. The principal feature will be the "Helter Skelter." This has a tower 25 feet high and a winding chute 60 feet long. The participant will take a slide from the top to the bottom and enjoy all the sensations of a parachute drop before landing on his or her feet at the bottom. The Merry-Go-Round will be about 32 feet in diameter and provided with moving animals as well as many sensational illusions effected by mirrors. This feature will cost about ₱16,000. The organ that furnishes the necessary music is to be operated by electricity.

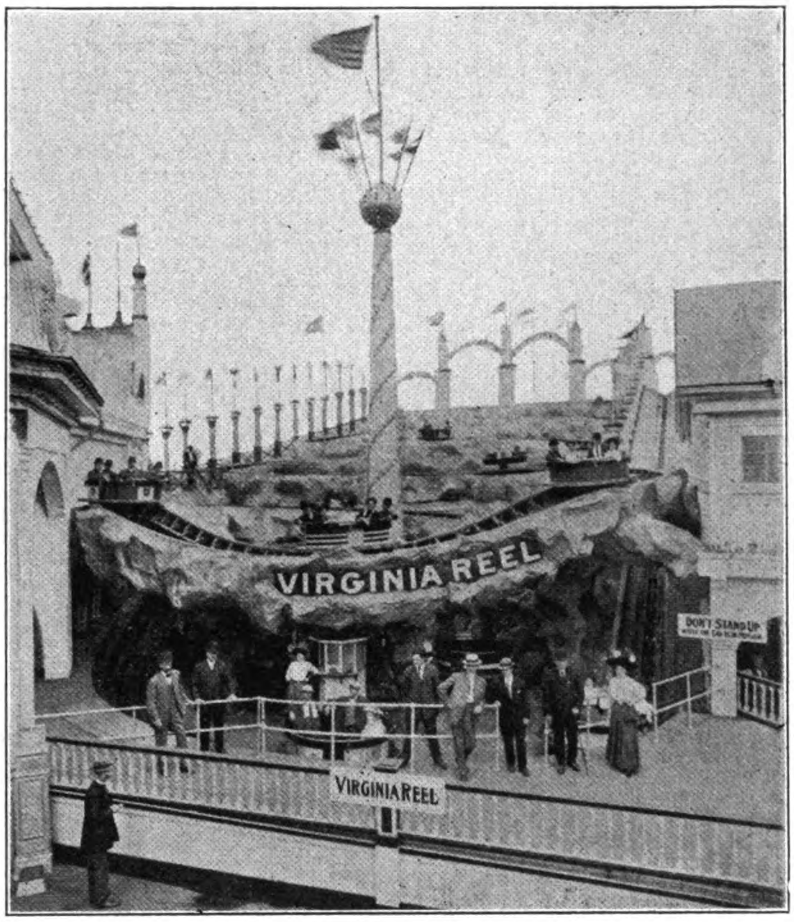
The illuminating tower itself will prove an attraction. It will be so located that the entire park will be as bright with light as at mid-day. It will be about 25 feet square at the base and tower into the air a distance of 75 feet with the top about five feet square, and upon which



THE MERRY-GO-ROUND

a large searchlight will be located. A bandstand capable of accommodating an orchestra of 50 pieces will be built in the tower about 10 feet from the base.

The dancing pavilion alone will cover an area of 70×100 feet, the floor of which is to be built of Ipil, and balconies will be constructed up and down. In connection with the pavilion, a bandstand large enough to accommodate an orchestra of 15 pieces will be constructed in a avorable location.



THE VIRGINIA REEL

In addition to the attractions mentioned over 25 distinct features, borrowed from Coney Island, will be included, and among them a "native circus," "Chinese theatre," "vaudeville in Spanish and English," "moving pictures," "penny arcade," "egg farm," "mirror maze," "inverted house," "dolly baby rocks," "Japanese ping-pong," "human roulette wheel, 100 feet in diameter," etc.

In addition to all these varied opportunities for sensation, an entire square of the park will be set aside for the children where they may enjoy themselves under the supervision of trained attendants in the teeter-totter and a thousand other ways known only to the expert in pleasing the young idea.

The company is busy organizing a complete fire department with equipment so that the most effective fire protection will be provided in time the day of the opening of the park.

The idea is that young and old need diversion in the tropics and that the more cheerful, sensational and innocent it is presented, the better it will be for the community. The promoters are men of the highest standing and there is no doubt of the success of the venture.

*A VALUABLE DISCOVERY

A PHILIPPINE SUBSTITUTE FOR *LIGNUM-VITAE*

The scarcity in the supply of an important wood used by hardwood manufacturers in the United States has created an unexpected opening for a wood from the Philippine forests. It is believed that this product offers a satisfactory and inexpensive substitute for a rare and costly West Indian wood, greatly in demand among manufacturers.

In the past, the forests of the West Indies have produced enough of the wood known as Lignum-vitae † to answer all the demands of the United States manufacturers. It was and is valued chiefly for its great hardness, its durability, its imperviousness to decay and its strength; no wood in the world having been discovered with just this peculiar combination of qualities. It is greatly in demand for sporting goods such as ten pins and bowling balls, for use in shipbuilding, and, in fact, for any use where wood of very great hardness, resistance, and weight is required and where wood is preferable to metal.

In 1906 such demands had been made on the West Indian forests for this wood that it was suddenly discovered that the supply of the Lignum-vitae tree had been almost exhausted. Consternation seized the manufacturers who were constantly making use of the product and they began writing to other parts of the world to learn whether there were other available forests of this valuable tree and, if not, what was the nearest substitute that could be obtained.

One of these letters reached Major Ahern of the Philippine Bureau of Forestry, requesting information concerning Philippine woods. The letter was from the National Association of Manufacturers with headquarters at New York and stated that having made inquiries in various countries, the manufacturers had been informed that probably the most favorable place in the world in which to find this precious wood was in the Philippine Islands.

The Bureau of Forestry finally proved that a wood answering the requirements of the manufacturers has been found. This wood is called Mancono. Its technical name is Xanthostemon verdugonianus, Naves. There is a fortune waiting for the man who will exploit it.

The Mancono tree grows in considerable abundance in northeastern Mindanao. Small areas contain almost pure stands of it. It has hitherto escaped the attention of those interested in exploiting the riches of the Philippines and is little known in general trade. The wood is so heavy and hard that it is difficult to cut, and the splitting of a log of it is almost impossible.

However, it grows in places easily accessible to those wishing to work it, being usually found along steep slopes near beaches whence it can be shipped by water transportation. Also, as it is only desired in short lengths, work on it can all be done in the forests where it is cut and the material can be easily handled. Thus the two great drawbacks which attend the marketing of much of the Philippine forest material are done away with; namely, the difficulty of securing land transportation from inaccessible forest districts and the difficulty of securing large numbers of laborers to cut the trees in these inaccessible districts.

The wood of the Mancono tree, even in the tropics where rot and decay are so ready to seize on all perishable materials is practically indestructible. White ants, the curse of the tropics, do not attack it. This quality has already made the wood esteemed by many of the Filipinos in the southern islands who use the cumbersome logs for posts and ground timbers.

The heartwood of the tree is uniformly reddish black, but after a number of years of seasoning it turns a black walnut color. Like all Philippine hard woods, it takes a fine polish.

The wood is of such extreme heaviness and density that it sinks in water. For this reason, in taking the logs from the beach where they are cut to the steamer that is to carry them, native boats are required between which the logs are rafted and kept on the surface of the water.

After two years of experiment in which the Bureau of Forestry is satisfied as to the relative merits of this wood and Lignum-vitae, the following facts are announced:

(1) The Philippine forests possess a tree whose wood, for at least some of the practical purposes required by the lumbermen in America, is equal to that of the rare Lignum-vitae. It is probably even harder though a trifle more light.

(2) It is found in merchantable sizes and quantities in areas of sufficient extent to warrant its exploitation, and with proper care in cutting the supply may be made to last indefinitely.

(3) It grows in places immediately accessible for cutting and the difficulties of transportation encountered in exploiting many Philippine woods are minimized.

(4) The wood has been used in shipbuilding as a substitute for Lignum-vitae at the United States Naval Station at Cavite, P. I., and the head of the steam engineering department pronounces it a perfect success after a year's trial. It has also been satisfactorily tested in the shipyard of the Bureau of Navigation in Manila.

(5) Most important of all, it can be produced and delivered in New York at a profit, for about four centavos a pound, while the costly Lignum-vitae brings from thirty to sixty centavos (fifteen to thirty cents, United States currency) for the same amount.

The Philippines should prove attractive for the exploiter of this rare timber. Likewise the hardwood manufacturers of America, who are casting about for a substitute of a fast diminishing wood, should find it to their profit to purchase the Philippine product, Mancono.

*Bulletin Philippine Bureau of Forestry.

†Samples of this wood may be had by applying, in person or by letter, to the Bureau of Forestry, Manila, free of charge.

Estimates for Buildings for Consular Offices in China, Korea, and Japan*

(Continued from August Number)

The most suitable site in Newchwang has a depth of 500 feet and a frontage of 250 feet on the main business thoroughfare. It has buildings on it, not modern, and their combined value is less than $15,000. This lot also contains a pond, which is convenient as a source of water supply for scrubbing and other purposes, there being up system of waterworks in Newchwang. The site can be purchased for $80,640. The Consul General says, however, that one-half of this lot, or 125 feet frontage, would be sufficient by tearing down the old buildings and erecting new, which would cost, including buildings, $55,000 or $60,000. Suitable buildings are estimated at $18,000. No plans of buildings have been given by the Consul General.

Another site, about 2 acres, and having buildings that could be utilized, can be bought for $20,000. This is not on the main thoroughfare, and does not front on a main street, but can be approached from either side.

Another available site is unimproved, and would require filling in. Price, $12,000. To improve that site and erect buildings would require $18,000, or a total of $30,000. This lot contains less than 1½ acres.

Minister Rockhill says prices of land have increased enormously in the last two years, but a reaction is expected. Distances are not great, and there is still plenty of available land. The city is on a mud bank, all equally unattractive until planted.

RECOMMENDATIONS.

Purchase of about 3 acres of land	$30,000
Erection of buildings	20,000
Total	$50,000

SHANGHAI.

The United States maintains at present six branches of Government work at Shanghai, viz., the consulate, with the consular court, the inspector of consulates in the Far East, the newly created United States court for China, the postal agency, the office of the Public Health and Marine Hospital Service, and the consular jail, which serves for all stations in China.

The consulate requires accommodations for the Consul General, the Chinese room, the record room, the consular court and library, and the storage room; all absolutely indispensable.

The inspector of consulates will make Shanghai his headquarters, and will require an office there.

The United States court consists of judge, district attorney, clerk, marshal, and will require a court room and four offices.

The postal agency at present occupies three rooms; all necessary.

The marine hospital surgeon (now separate from the consulate) requires two offices and a fumigating room. He should be in the consular building, as his work is connected with that of the consulate.

The jail should be a well ventilated building, with a compound for exercise, and modern jail equipment.

If the Government should establish inspectors of Chinese immigration, office room for them would be required.

The contemplated plan of having a commercial library and museum would require a good deal of space.

The present consular quarters are wretched in the extreme. The building itself is old and infirm, and is situated behind the godowns (warehouses) of the Japanese Steamship Company, and in a part of the city remote from the centre of business activity. With one exception, that of Austria, it is the poorest of the consulates in Shanghai, and has the worst location. However, it is certain that no better building in a better location can be obtained for anything like the rent we pay.

The jail attached to this consulate is a disgrace, and, in the light of modern practice, inhumane. It lacks light, ventilation, and a place for exercise; moreover, it is so insecure that escapes would be common were there any place for a fugitive to go. As it is, prisoners by the simplest methods of jail breaking have gotten at large when it pleased them to do so, and this without fault on the part of the keeper. It is not possible to remedy these conditions in regard to the jail as long as the consulate remains in its present quarters. The building does not admit of extension of the jail facilities, every portion being occupied now.

The interior of the building in general is shabby, and redecorating should be done. As we are required by the terms of occupancy to do all interior repair, we are not justified in incurring any large amount of expense for the services and material.

The Consul General here cannot have his wife and children live at the consulate on account of the character of the locality; it is not a fit place for women and children. With one exception, he is the only consul not housed by his Government. The rent, including that which is now paid and that which the Government will have to pay for the new United States court, immigration offices, etc., will approximate about $10,000 a year.

The lease of the present consular building will expire in about four years, and the landlord has stated that the rent will then be doubled. As the maximum rent is now paid, it would mean that the excess will have to come out of the pocket of the Consul General or that the offices would have to be removed to a cheaper building, remote from the business district. At present the post office is in the same building and contributes one-half of the total rent, and there is still left a small balance to be paid by the Consul General.

The post office is an important one, handling about 12,000 bags of mail a year, and receives about 200 bags at a time. The German Government has a separate post office, costing about $250,000, and it employs about twenty-persons to carry on the postal business. The English have a separate post office, valued at $50,000, and have a staff of British and natives of about twenty. The Japanese, Russian and French Governments maintain separate post offices. The American post office matter exceeds the German and that of the other governments, with the possible exception of the English.

August 9, 1906, Mr. Rockhill enclosed a dispatch from the Consul General, in which it was stated that he could purchase suitable property near the German and Japanese consulates for $216,000. This property comprises nearly an acre, and situated upon it are buildings which are in good repair and can be easily altered for the purposes of the Government. They will afford all the room needed for offices and residential quarters for the whole staff. The location is the finest in Shanghai, overlooking the whole harbor. Mr. Rockhill estimates that $25,000 would put the property in good condition. September 11, 1906, Consul General Rodgers enclosed a series of photographs of the property.

RECOMMENDATIONS.

Purchase of the property described by the consul	$216,000
Repairs	25,000
Total	$241,000

TIENTSIN

The cost of a site in the immediate business centre of the city is practically prohibitive, being about $9,360 per mow (one-sixth acre).

The best available site is one known as the Morling property, facing on three streets, and completely filled up to a height of 3 feet above the street level, an important item, as practically all Tientsin requires filling. This property is about 2 acres in extent and can be bought for $30,240.

Buildings required are: A two story residence, a two story office building, a jail, a stable and servants' quarters.

The residence should have a reception room, a dining room, a sitting room, hall, pantry, etc., on the ground floor, and five bedrooms, five bathrooms and a storeroom on the second floor.

The office building should have four offices, a court room, on the ground floor, and residences for vice consul and for student interpreter on the second floor.

The jail should include a small residence for the marshal. Floor plans of the residence enclosed, with Minister Rockhill's dispatch of August 9, 1906.

RECOMMENDATIONS

Purchase of Morling property	$30,000
Erection of Buildings	35,000
Total	$65,000

Tientsin is a city of about 1,000,000 inhabitants, and was opened to foreign trade in 1858, since which time it has grown rapidly. Its commercial activity is one of the first things which strikes the visitor, as the transfer of cargoes is the most conspicuous form of work one sees. The boat crowded river ways extend troughout the city and give a total length of crowded river way of 10 to 12 miles. Thousands of coolies fill the passageways, carrying articles of commerce to and from these boats.

The foreign settlements consist of the British, French, Japanese, German, Russian, Italian and Austrian. In the first four concessions the improvements rank with many of the United States. In the native city radical improvements are going on. The city wall, built in 1405, has been razed and its base forms a splendid roadway. The streets have been straightened, and in many places widened, and sewers and waterworks are constructed.

KOBE

The most desirable site would be on the water front, where it would be necessary to purchase a whole lot, 21,350 square feet (about 146 feet each way), at a cost of $70,000. These lots are held in perpetuity on leases granted by Japan prior to treaty revision, subject to nominal ground rental by way of taxes.

Consul Sharp estimates that the following floor space would be necessary for consular purposes:

Consular room, 27 by 20 feet	$540
Shipping office, 30 by 20 feet	600
Vice consul's room, 15 by 20 feet	300
Stamping room, 12 by 15 feet	180
Typewriters' room, 10 by 12 feet	120
Archives, 15 by 20 feet	300
Waiting room, 12 by 15 feet	180
Two storerooms, each 15 by 20 feet	600
Hall space, 9 by 114 feet	1,026
Two closets, each 6 by 9 feet	108
Eight rooms, halls and closets	$3,954

The same floor space is recommended for residential quarters, and also a separate outbuilding for servants' quarters, 1,080 square feet. Constructed of brick, with stone finishings, the estimated cost for all necessary buildings is $50,000.

RECOMMENDATIONS

Purchase of ground as above	$70,000
Erection of buildings	50,000
Total	$120,000

NAGASAKI

Consul Harris estimates the cost of ground and buildings as follows: Ground, $25,000; buildings, $30,000.

He recommends that efforts be made to purchase a very desirable and practically vacant lot which is offered for $42,500, but should bring only $25,000, or $30,000 at most, as there is no demand justifying the price asked. It is within three minutes' walk of custom house, banks, consulates, etc., and directly across the "bund" from the principal landing place for passengers.

(Continued on page 181)

*Journal of the American Asiatic Association.

SUCTION GAS PRODUCER POWER

American Producers for American Coals and Lignites

By L. P. TOLMAN

DEVELOPMENT.

Probably no invention has ever come into public favor in so short a time as the Suction Gas Producer. Introduced into the United States about five years ago, this system of developing power from coal and lignite has already become a commercial reality and is fast gaining approval among engineers and power users.

The early history of Producer Gas dates as far back as the year 1509, at about which time the "Fulen Heitzen" first became known, and were described by H. Brunschwyk in his book "Ars Distilandi de Compositis," or "The Art of Distilling Compounds," which was published in Strassburg, Germany.

The first plant similar to those now in use was built by Mr. Emerson Dowson, who has the distinction of introducing in England, in 1878, the first practical Gas Producer for power. This was of the "pressure" type. A small steam boiler was necessary, as well as a large gas holder. Mr. Dowson's plants were successful and are still in regular service. Anthracite is the usual fuel.

The next substantial progressive step was taken when Dr. Ludwig Mond, in England, in 1889, developed the first successful soft coal producer. This became a standard for sizes of 250 horse power and larger but proved too elaborate and expensive for use in smaller sizes. With this plant a large gas holder is needed, also a steam boiler and an elaborate system of gas washers, purifiers, and economizers.

Then followed the invention of Herr C. Wiegand of Hanover, Germany, who in 1895 took out the first patent (No. 88044—German) on the principle of the modern Suction Gas Producer. The importance of this invention was not realized in Germany until some years later.

In France, during the same year, Benier built what is believed to be the first practical Suction Gas Producer. This was a success as soon as the necessary changes had been made in the gas engine to adapt it to the "suction" system. It is surprising in this case, as with most other great inventions now in general use, that an apparatus so simple and easily understood was not developed long before.

About five years ago American manufacturers began to take a live interest in the success of European, and especially German, Suction Gas Power Plants. American engineers visited Europe and in this way learned at first hand what was being done abroad. As early as the year 1904, it is estimated that there were over 10,000 Suction Gas Power Plants in Germany alone. They had come into general use and were found in the finest hotels, stores, factories, etc., for electric lighting and other power purposes. The actual users of the plants were enthusiastic over the results.

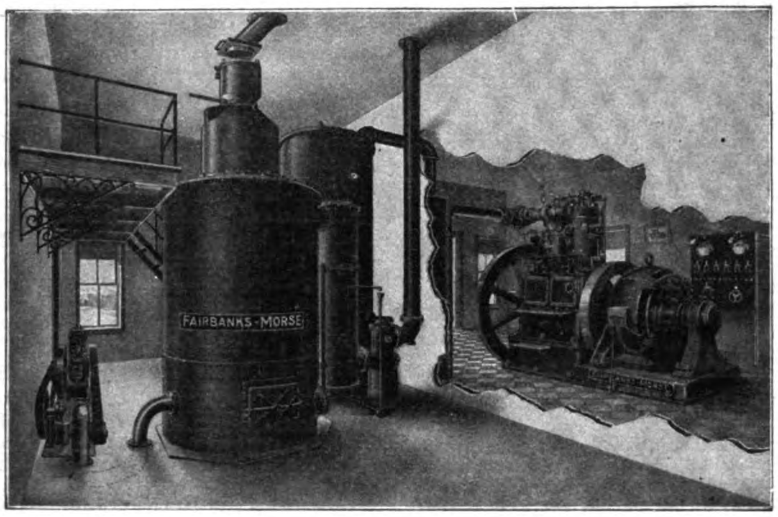


FIG. 1—A COMPLETE PRODUCER GAS POWER PLANT WITH ENGINE DIRECT CONNECTED TO ELECTRIC GENERATOR

That Producer Gas Power is a pronounced success in the United States is evidenced by the large number of satisfactory installations already in operation on American coals. It is estimated that there are over 500 Producer Power Plants in this country, having an aggregate of 150,000 horse power. Of these, about eighty-five per cent are of the "suction" type and fifteen per cent of the "pressure" type. The Suction Plants average approximately 100 horse power each while Pressure Plants are usually built in sizes larger than 1,000 horse power.

This article deals with Suction Gas Power Plants in single units of 200 horse power, or smaller, and complete plants made up of a number of such units 1,000 horse power, or larger. This range of sizes covers the requirements of the great majority of power users.

COMPARATIVE WASTE WITH STEAM AND PRODUCER GAS POWER.

This idea is illustrated graphically. Fig. 2 illustrates a modern steam plant with its many complications, including compound condensing steam engine with water tube boiler. This plant converts 8% of the total energy of the fuel into useful work. (In actual practice the percentage utilized is usually less.) In other words, 92% or more of the energy in the coal goes to waste as smoke up the chimney, exhaust from the engine, heat radiation, etc.

A 150 horse power steam plant of this type, running at two-thirds load, 3,100 hours per year, uses approximately 4½ lbs. coal per brake horse power per hour. With coal at $2.75 per ton, the fuel alone costs $1,918.12 per year. In addition, the cost of attendance is a large item of expense, and the boiler, especially, calls for constant attention, cleaning, and repairs.

Fig. 3 illustrates the ordinary throttling governor steam engine with tubular boiler, a type which is in very general use, especially in sizes from 15 to 200 horse power. This plant converts 5% (though usually much less) of the total energy of the fuel into useful work. In small steam plants the total amount of energy utilized is often not over two or three per cent. In other words, 95% or more of the energy in the coal goes to waste as smoke up the chimney, exhaust from the engine, heat radiation, etc.

A 150 horse power steam plant of this type, running at two-thirds load, 3,100 hours per year, uses approximately 7 lbs. of coal per brake horse power per hour. With coal at $2.75 per ton, the fuel alone costs $2,983.75 per year. In addition, it requires the entire time of at least one man to operate the plant. The boiler, especially, requires constant care, cleaning and repairs, and is always a source of danger.

Fig. 4 illustrates a Suction Gas Producer Power Plant. The apparatus is simple, reliable, and amazingly economical. With this plant 18% of the total energy of the fuel is converted into useful work. (Varies according to conditions from fifteen to twenty-one and one-half per cent.) This means that a Suction Gas Producer Plant uses from one-half to one-fourth as much coal for a given amount of power as a steam plant.

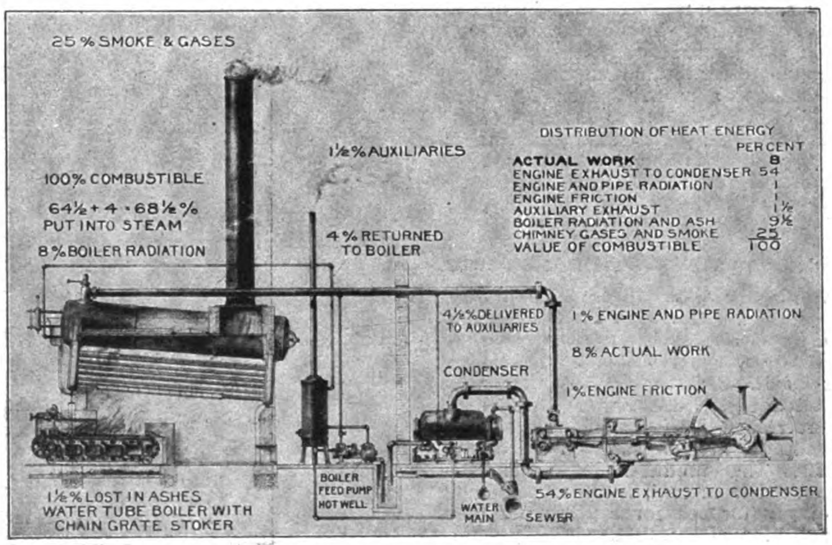


FIG. 2—COMPOUND CONDENSING STEAM PLANT

A 150 horse power Suction Producer Plant, running two-thirds load, 3,100 hours per year, uses approximately $1\frac{1}{2}$ lbs. of coal per brake horse power per hour. (Tests have been made showing a consumption of less than $1\frac{1}{4}$ lbs. at two-thirds load and less than one lb. at full load.) With anthracite at $5.00 per ton, the fuel alone costs $1,162.50 per year. Furthermore, the cost of attendance can be reduced materially with a Producer Plant, as the operator can spend part of his time in other useful work.

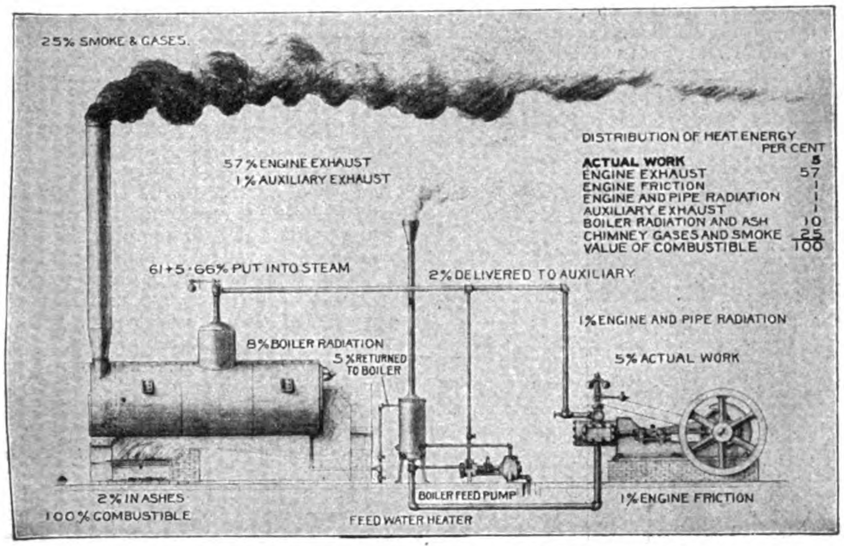


FIG. 3—SIMPLE STEAM ENGINE AND TUBULAR BOILER

GOVERNMENT TESTS.

Much valuable information is given in the report of the United States Geological Survey concerning the fuel testing plant at the Louisiana Purchase Expositon, St. Louis, Mo. For three years the government experts conducted a series of tests on many samples of coal from mines all over the country. Briefly, the apparatus included a non-condensing Corliss Engine Steam Plant with water tube boiler and a Pressure Type Producer with three-cylinder vertical gas engine.

From the summary of results obtained from a long series of tests, the fuel consumption in Pressure Type Producer Plant varied from 1.18 to 3.47 lbs. per brake horse power per hour, the average being approximately $1\frac{3}{4}$ lbs. The average with the Corliss Steam Plant was found to be approximately $4\frac{1}{2}$ lbs., using similar fuels. With lignite, the consumption in Pressure Producer Plant was from 1.95 to 3.47 lbs., the average of five samples actually figuring 2.60 lbs. With Corliss Steam Plant using lignite, the average consumption of "coal as fired" (not "dry coal") was approximately 7 lbs.

While most of the above tests were on bituminous coals, which cannot be used advantageously in a Suction Producer, yet the consumption of anthracite in the latter is usually less than as stated for bituminous coal in "pressure" type producer, probably due to the fact that there is less resistance to the flow of gas in the suction type. For example, tests on lignite in a Suction Producer commonly show a consumption of 2 to $2\frac{1}{4}$ lbs., whereas from the five lignite tests at St. Louis the average is 2.60 lbs. in a Pressure Producer Plant.

ADVANTAGES OF SUCTION GAS PRODUCER POWER.

We have already discussed the high thermal efficiency of the Suction Gas Producer Plant. The most important and the most practical commercial advantage is the economy effected in the cost of developing power. If there were no other advantages, this one feature would be sufficient reason for installing this system. Other advantages may be summed up briefly.

Simplicity. The producer, in which fuel gas is generated from coal, is almost as simple as an ordinary furnace for heating purposes. The gas engine is entirely automatic in operation and needs little more than the ordinary cleaning and care as to lubrication.

Absolute safety. There is no danger from explosion or from fire. It is absolutely safe, even in the hands of men with little mechanical training, and the many plants which are in continuous operation, some of them twenty and even twenty-four hours a day, indicate that they are thoroughly reliable and will stand hard, everyday usage. Boiler insurance is unnecessary with Producer Plants and the troubles and dangers encountered with steam boilers are entirely avoided. The complete gas engine and Suction Producer Plant is almost entirely automatic in operation, very little attention being required. Ordinarily the operator only needs to spend ten to fifteen minutes about every two hours to dump a few buckets of coal into the producer and give general attention to the plant. He can spend part of his time in other useful work and an extra man as fireman is not required, even with plants from 400 to 500 horse power.

No smoke stacks and no smoke. Hundreds of thousands of dollars which are now spent annually in building smoke stacks can be saved; and what is of greater importance, the smoke nuisance can be entirely abated. The value of this feature can hardly be over-estimated, and such an ideal condition seems almost incredible to those who are not familiar with the subject.

Less coal to be handled and stored. Where the Suction Gas Producer Plant uses $1\frac{1}{4}$ or $1\frac{1}{2}$ lbs. of coal, the steam plant commonly requires 4 to 6 lbs. or more. Moreover, with the Producer Plant there are fewer ashes to be handled and disposed of.

Starting. The producer will hold fire all night or even for several days, and the proper quality of gas can be generated after fifteen or twenty minutes blowing to revive the fire. The engine can easily be started on compressed air, and after getting up to speed it is then operated on Producer Gas.

Stand-over loss. The stand-over loss with Suction Producer amounts to about one-third as much as with a steam boiler. In other words, where the stand-over loss with a steam plant for fourteen hours amount to 600 to 800 lbs., or more, with a Suction Producer Plant of the same horse power this loss would not exceed 200 lbs.

SUCTION GAS PRODUCERS.

Fig. 5 illustrates an exterior view and Fig. 6 a sectional view of a Fairbanks-Morse Anthracite Suction Gas Producer. All of the principal features are clearly shown. Coal is admitted to the producer through a hopper at the top. This has double closure, so that fuel can be introduced without at the same time admitting air. In the process of partial combustion which takes place producer gas is generated.

The hot gas passes through a vaporizer in which a small amount of steam is formed which, with a limited amount of air, passes under the grate of the producer. In the smaller sizes, the vaporizer is at the top of the producer where it uses the waste heat from the escaping gas and where, at the same time, the water keeps the top from getting too hot. In the larger sizes the vaporizer is separate and connected to the producer by piping.

From the vaporizer, the hot gas flows through the scrubber, which is merely a cylindrical-shaped tank filled with coke, over which a spray of water is constantly sprinkled. The large contact surface of the coke effectually cleanses the gas of dust and impurities carried over from the producer, and also acts to cool the gas, which is essential in order to prepare it for use in the engine.

With certain fuels, especially when much tar is encountered, it is also necessary to add a sawdust purifier in order to abstract the last traces of tar from the gas. While not absolutely essential, yet it is always advisable to use a gas tank between the scrubber and the engine, in which a certain amount of gas is stored in ready use for the engine. This is especially desirable where the loads are variable.

In the care of the producer, the principal attention needed is to poke the fire every few hours, according to quality of the coal, in order to break up and remove clinkers, which would otherwise interfere with the making of sufficient gas. Poke holes are provided so that every part of the fire can be reached conveniently.

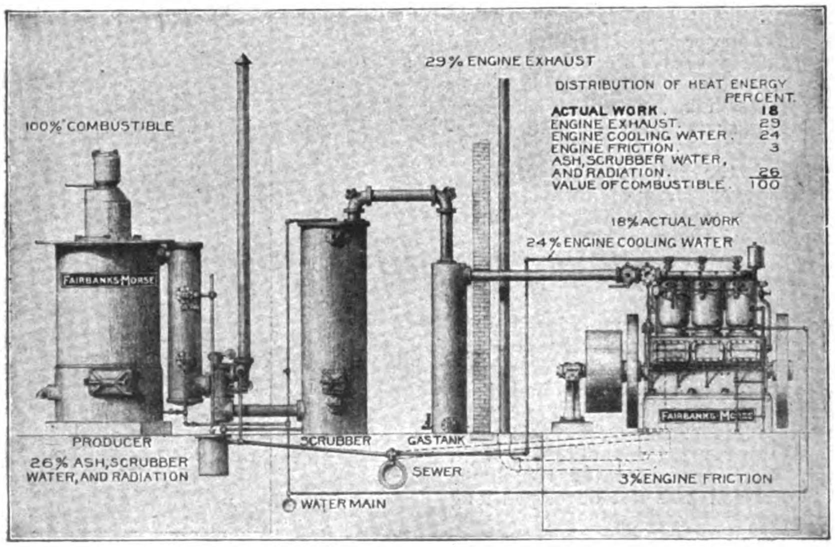


FIG. 4—SUCTION GAS PRODUCER POWER PLANT

FUELS.

Anthracite in "buckwheat" or "pea" sizes, lignite, coke, and charcoal are the fuels commonly used. In many sections these small sizes of anthracite can be bought cheaply in car lots. For example, in Chicago the car-load price of "buckwheat" anthracite is usually about $3.75 per ton. In some of the states west of Chicago the price varies from $5.00 to $7.00 per ton. At some points in southern Canada these small sizes of Penn. anthracite can be bought for from $3.00 to $4.00 per ton. In some of the eastern states, which are nearer the source of supply, the prices are even less.

The Lignite Producer offers a wonderfully cheap and reliable power in sections where this fuel is available. There are enormous deposits of lignite in Texas, Arkansas, Louisiana, North Dakota, Montana, Wyoming, Colorado, and other western states. This can usually be had at a price of from $1.00 to $3.00 per ton. At Smithville, Tex., where a 150 horse power Lignite Producer Plant is installed, the cost is $1.70 per ton. Lignite is of little value for steaming purposes, mostly due to the large amount of moisture, but it makes a most excellent fuel for the producer and in some respects is easier to handle than anthracite.

Coke and charcoal are economical fuels in some sections and can be used separately or mixed with anthracite.

In order to give some idea of the relative value of different Producer fuels, the results of tests on a number of samples are given. These samples were received from various parts of the United States, as well as from foreign countries. For example, in Table 1, giving the analyses of different anthracites, sample 65 is from Europe, 101 and 76 from Pennsylvania, 71 from Elk Mountain, Col., and 89 from Banff, B.C., Canada. The following tests were made by the Experimental Department at the works of Fairbanks, Morse & Co., Beloit, Wisconsin:

TABLE 1—ANTHRACITE.

Sample No.	B. T. U., per Lb.	Fixed Carbon.	Volatile.	Ash.	Moisture.	Sulphur.	Quality.
65	15,434	88.8	7.4	2.9	.9	.99	Very good.
101	13,952	83.5	5.5	8.2	2.8	.82	Good.
76	12,058	73.9	5.7	18.9	1.5	.86	Poor.
71	13,332	77.2	9.3	13.4	.1	.73	Fair.
89	14,746	79.3	8.1	10.5	2.1	.59	Good.

With the best coal there is little formation of clinker that will not work down to the grate without poking from the top, and many European Producers have no top poke holes. These are not successful on American coals, for while it is always desirable to get the best coal, it is practical to operate continuously on an average, or even a poor coal, by working the clinkers down through top poke holes. It is an advantage in using poor anthracite to have large producers.

TABLE 2—COKE.

Sample No.	B. T. U., per Lb.	Fixed Carbon.	Volatile.	Ash.	Moisture.	Sulphur.	Quality.
73	12,787	86.7	2.4	8.4	2.5	.93	Good.
77	14,213	92.3	1.7	5.8	.2	.6	Very good.
94	9,528	79.4	3.7	14.3	2.6	.59	Rather poor.
97	13,811	90.4	1.7	6.1	1.8	.55	Very good.

This fuel varies in quality according to the soft coal used in its manufacture and the

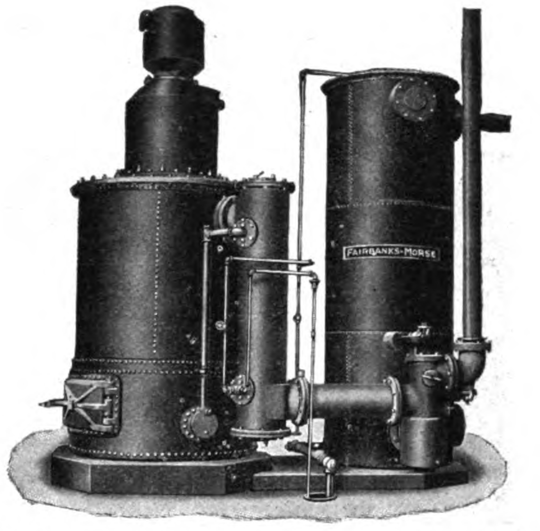


FIG. 5—FAIRBANKS-MORSE SUCTION GAS PRODUCER

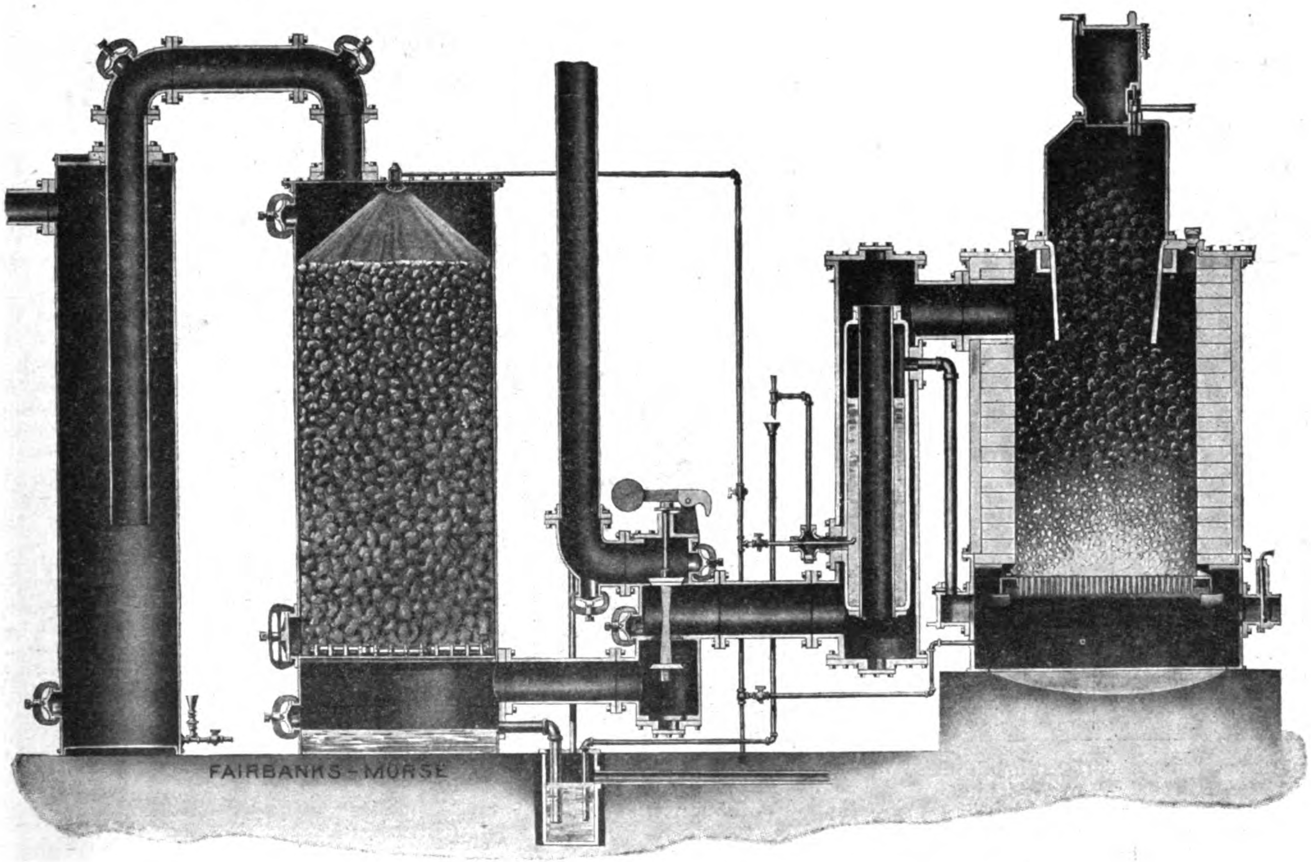


FIG. 6—SECTIONAL VIEW OF FAIRBANKS-MORSE SUCTION GAS PRODUCER

method of treatment. All coke must be crushed to pass a screen of 1-inch or 1¼-inch mesh, and must be freed from dust with a fine screen. It is usually advisable, where coke is used, to install one size larger producer than standard. A sawdust purifier is also desirable to remove dust, which is more abundant than with anthracite.

Gas from coke averages about 115 B.T.U. per cubic foot (lower heating value), while from anthracite it averages 125 or more. For this reason the power capacity of the engine will be a little less on coke gas, but not as much less in proportion as the heating value. Some coke will not maintain the fire hot enough. Mixing one part anthracite with two of coke usually corrects this.

CHARCOAL.

B. T. U., per pound, 14,438; Fixed Carbon, 81.3; Volatile, 12.9; Ash, 1.1.

The use of this fuel becomes practical by the addition of a centrifugal tar extractor located between the scrubber and a sawdust purifier. With this fuel, also, it is advisable to install one size larger producer than with anthracite.

Charcoal gas has a heating value averaging 130 B. T. U. or more, and because of this gives somewhat more power at the engine. It can be used in as large pieces as will readily go through the producer charging hopper. Less tar results from charcoal that is perfectly charred, but more or less material not perfectly charred is likely to be found. No clinkers are formed with this fuel.

TABLE 3—LIGNITE.

Sample No.	B. T. U., per Lb.	Fixed Carbon	Volatile	Ash	Moisture	Sulphur
51	11,634	20.3	46.1	6.3	27.3	1.01
57	8,753	29.4	35.7	7.1	27.8	.63
95	11,566	41.8	36.7	3.7	17.8	.41
103	9,765	36.8	35.8	10.7	17.2	4.09

Lignite cannot be used in standard Anthracite Producers, but the Fairbanks-Morse Lignite Producer operates very successfully with this fuel. Gas from lignite averages 130 B. T. U. per cubic foot. This fuel can be fed to producer in any size that will go through the charging hopper and it causes no serious trouble from clinkers.

PRODUCER GAS ENGINES—VERTICAL TYPE.

These engines are made in sizes of 200 horse power and smaller. By combining several units, plants of 800 to 1,000 horse power or larger have been installed. Fig. 7 illustrates a thoroughly modern Fairbanks-Morse Engine of this type. Sectional view is shown in Fig. 8. It may be of interest to engineers to note briefly a few of the carefully developed features in the design of these engines.

The present system of ignition is a great improvement over the methods formerly used. Make-and-break igniter is so constructed that it can be adjusted to spark as early or as late as desired, when engine is running or at rest, by means of a convenient hand lever. A single lever controls the time of ignition for all cylinders. This is a feature of much importance, especially with Producer Gas, as it permits timing the ignition to give the greatest possible power and economy with any particular grade of gas and when the engine is running. In addition, there is an independent adjustment for each igniter which is operated by drop cam.

Igniters can be removed, inspected, and cleaned, without interfering with other working parts, and they are located most conveniently. As the successful operation of a gas engine depends largely upon the igniter, the value of these features cannot be emphasized too strongly.

Both valves are mechanically operated from a single cam shaft, which is located inside the crank case. This minimizes the amount of noise, and furthermore the two-to-one reduction of gearing includes pinion which is made of alternate layers of steel and red fibre. These features insure a quiet running engine.

The simple fly-ball governor is of a most carefully designed pattern. This operates a balanced disk valve which is so constructed that there is no frictional contact or surface to become fouled by any impurities in the gas.

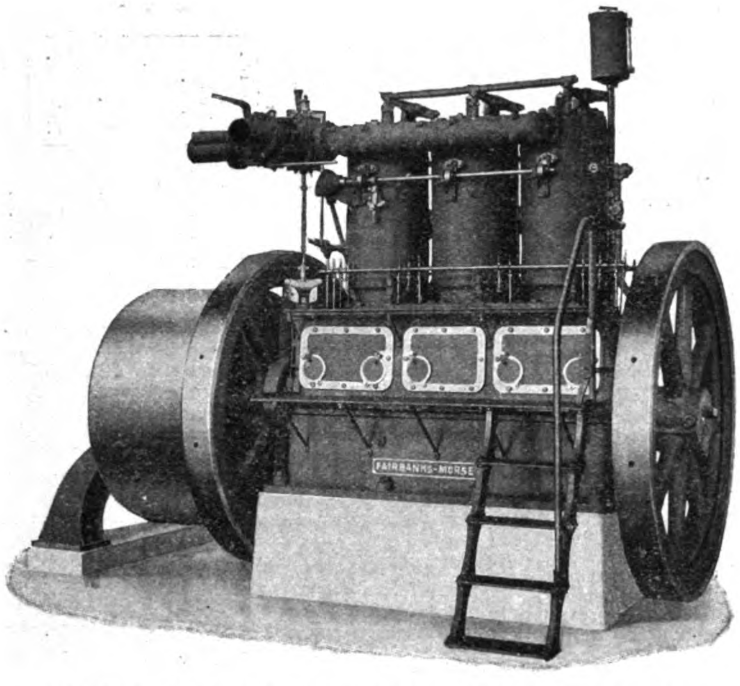


FIG. 7—MULTI-CYLINDER VERTICAL PRODUCER GAS ENGINE

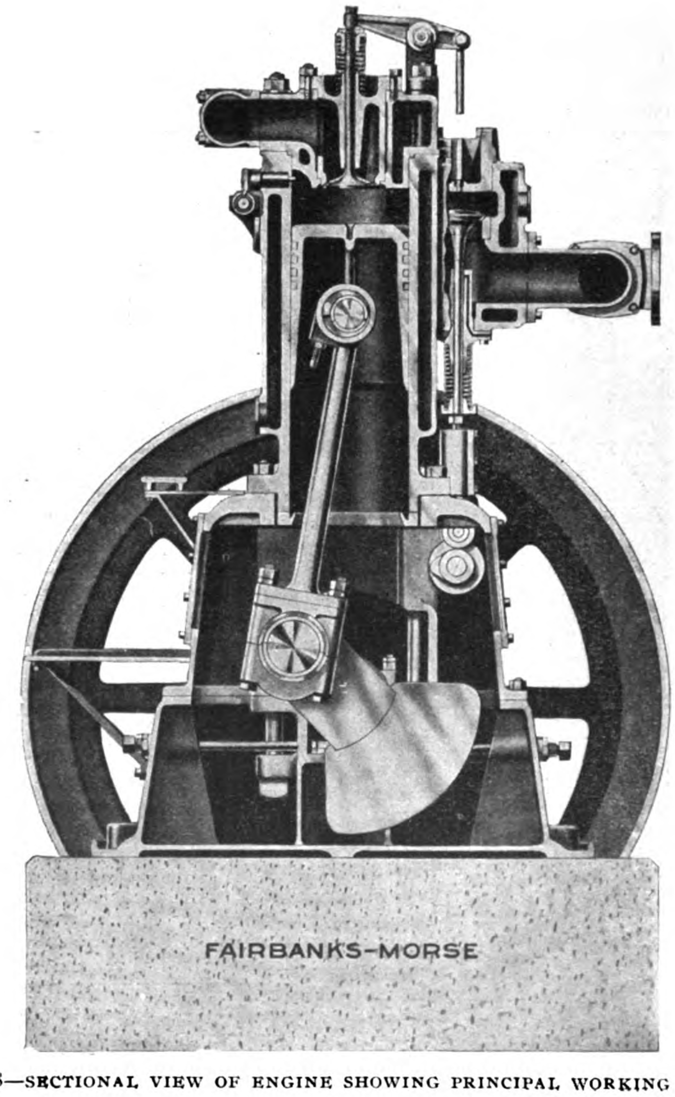


FIG. 8—SECTIONAL VIEW OF ENGINE SHOWING PRINCIPAL WORKING PARTS

This is especially important with engines operating on Producer Gas. The governor insures very close regulation, adapting the engine for electric lighting and other service requiring uniform movement.

Lubrication is effected by means of a single elevated oil reservoir, which is provided with separate brass pipe with individual sight feed

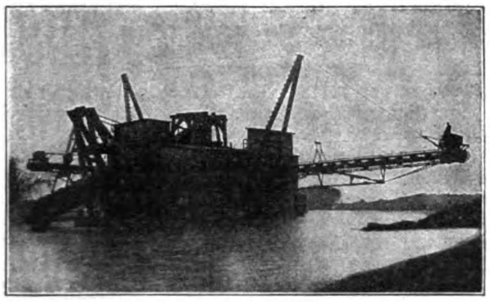


FIG. 9—DREDGE OPERATED BY 150 H. P. PRODUCER PLANT

for each bearing. This is a most effective system of engine lubrication and has been adopted as the best to be had. The drip from the different bearings collects in the base of the engine, which is drained by means of a small pump. The oil is run through a filter and is then used over again.

Each engine is fitted with a hand-operated speed regulator, by means of which speed can be reduced when engine is running.

One cylinder of each engine is fitted with automatic compressed air starting gear. This can be thrown into or out of action by the movement of a single lever, and the engine is started automatically on compressed air.

PRODUCER PLANTS IN ACTUAL SERVICE.

A very unique Producer Installation is illustrated in Fig. 9, which shows a large dredge in use at the present time in the state of Iowa. A 150 horse power Fairbanks-Morse Producer Plant is installed on this dredge, some of the machinery of which is electrically operated, and the engine also furnishes power for electric lighting.

This plant operates twenty-four hours a day and is handled by two men, one for each twelve hour shift. While it has been subjected to the hardest kind of usage, yet this plant has been entirely satisfactory in every particular.

From report on 50 horse power plant used in operating marble works in Tennessee, statement is made that they use only eighteen ordinary hods of buckwheat anthracite per day of nine hours at a total cost of $1.39 for the coal. At this plant they poke the fire once in the morning before starting and once at night after shutting down. Outside of this the plant requires very little attention. The following is taken from letter written by the president of the company:

> "We are more than well pleased with the outfit, from the fact that it has proven entirely satisfactory, and in our minds is the cheapest power that can be installed. We take pleasure in recommending it to any and all manufacturers who are in the market for power, because of its durability and economy, with service unsurpassed."

At one 150 horse power installation in western Iowa, actual figures show that the cost of coal and oil is $105.90 per month. With their former Corliss Engine Steam Plant, and with somewhat smaller load, the cost of coal and oil amounted to $366.60 per month.

A most remarkable showing has been made at a point in Texas, where the City Electric Light and Water Works Plant is now being operated by a 150 horse power Fairbanks-Morse Producer Gas Engine using Texas lignite as fuel. In the words of the proprietor:

> "A careful figuring of the former fuel and labor conditions as compared with the present conditions, demonstrates that we are saving in operating expenses $900.00 per month."

A steam plant was formerly operated at this point, using crude oil as fuel. They were unable to burn enough lignite under the boilers to keep up steam and to do the required work.

One of the largest Suction Gas Producer Plants in the United States is illustrated in Fig. 10. This plant comprises six 150 horse power engines and one 200 horse power engine —1,100 horse power in all—complete with Suction Gas Producers, using anthracite as fuel. This plant is in Wisconsin and is operated twenty to twenty-four hours each day, excepting Sundays and holidays.

There was previously in use in these works a Corliss Steam Plant, run non-condensing, with water tube boilers using Illinois soft coal as fuel. While it is difficult to make accurate comparisons as regards fuel consumption, yet as a matter of general interest it may be stated that the steam plant required approximately three and two-thirds times as much coal per unit of power developed as the present Producer Gas Power Plant.

FUEL CONSUMPTION AND GENERAL COMMENTS.

The fuel consumption with Producer Plants depends upon a number of conditions, such as the quality and heat value of the coal used, the freedom from clinkers and excessive amount of ash, whether the engine is operating under nearly full load or under very light loads, and also whether the load is constant or rapidly fluctuating. Much also depends on the operator in charge of the plant. A careful and intelligent engineer will secure economical and reliable service. With a steam plant it is usually necessary to employ a licensed engineer, which has been found necessary owing to the danger involved in the careless handling of steam boilers. With the producer this danger is avoided and it is not necessary to employ a licensed engineer, although the best results can always be secured by employing an intelligent operator and one who will take a personal interest in the plant under his charge.

The fuel consumption usually varies from a pound to one and one-quarter pounds per brake horse power per hour at about full load, according to conditions and the quality of coal used. While economy tests with high grade fuels, and also short run tests, often show a lower consumption than stated, yet the figures submitted are conservative and give a fair idea of what may be expected.

A series of tests were recently made on a 150 H. P. Fairbanks-Morse Engine and Anthracite Producer for continuous runs of twenty-four hours, the object being to determine the comparative economy at different loads. The coal used was an ordinary grade of "buckwheat" Penn. anthracite. The fuel consumption per brake horse power hour at less than full load was found to increase per unit of power developed as follows:

¾ load—consumption 5.6% more per horse power hour than at full load.

½ load—consumption 21.5% more per horse power hour than at full load.

As the ordinary engine in use has a load factor of from 50 to 75%, the above figures indicate that the Producer Gas Engine is exceedingly economical, even under light loads.

The remarkable economy, together with the numerous other advantages mentioned briefly in the foregoing, have created a large and steadily growing demand for this form of power equipment. This fact and the surprisingly large number of installations already in successful operation on American coals indicate that a new industry has been created in this country.

Power users and engineers will welcome Suction Gas Producer Power as the logical solution of many of their power problems, especially in sections where local fuel costs are favorable. Indeed, when the actual merits of the subject are considered, it is not unreasonable to predict that the demand for Producer Gas Installations may soon exceed even the most optimistic hopes of the manufacturers.

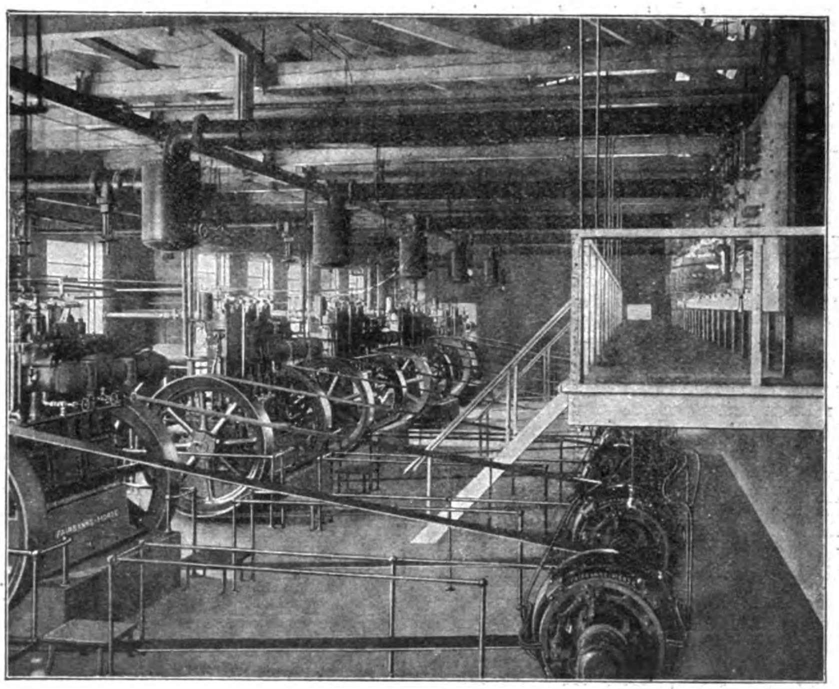


FIG. 10—A 1100 H. P. SUCTION GAS PRODUCER POWER PLANT

FAR EASTERN COMPANY REPORTS

BRITISH NORTH BORNEO COMPANY.—The report of this company submitted at its 51st half-yearly meeting in London, July 28th, was most satisfactory to the shareholders and a dividend of 4% was declared. As Managing Director Cowie remarked:

"It will be remembered that not so very long ago our friends on the Stock Exchange advised their clients to buy our shares only as a good lockup for their grandchildren. Well, gentlemen, they will now be in a position to improve on that. In future they can say to them: 'Excellent lock-up for your grandchildren, with small but progressive dividends in the meantime for yourselves—last dividend 4 per cent.' The receipts for 1907 amounted to £145,816, comprising £141,268 in Borneo and £4,548 in London. The expenditure amounted to £79,721 in Borneo and £7,311 for home expenses. These figures show receipts exceeded expenditure by £58,783, out of which £5,875 has to be taken into account for depreciation, adjustment of exchange, etc. The assets of the company have increased in value by at least £7,000, which has been added to lands and property account. There has been a net expenditure on capital account of £35,312, including £12,178 proportion of salaries, etc., chargeable to capital. Revenue account shows a credit balance of £56,407, and added to the balance of land sales and revenue account from last balance-sheet, and deducting interest on debentures and bonds, writing off £12,061 for accumulated depreciation, etc., there remains a credit balance of £134,201, out of which the Court recommend the payment of a dividend at the rate of 4 per cent. per annum."

BALGOWIE RUBBER ESTATES, LIMITED.—The report of this company for the year ending March 31st, submitted last month, shows a net profit for that period of $25,976.97, including the amount forward from last account. Out of this an interim dividend of 12.5% was paid last August absorbing $10,925. The recommendation of the directors to carry forward the balance was adopted.

THE HONGKONG AND WHAMPOA DOCK CO.—The ordinary half-yearly meeting of the shareholders of the Hongkong and Whampoa Dock Co., Ltd., was held at their offices in Queen's Buildings at noon on August 24.

Mr. H. P. White presided and there were present:—Hon. Mr. W. J. Gresson, Mr. C. Brodersen, Mr. G. Friesland, Mr. W. Helms, Sir C. Paul Chater, Kt., C.M.G., Mr. D. W. Craddock, Mr. Edgar G. Barrett, Mr. J. S. Van Buren, Directors; Mr. R. Mitchell, Actg. Chief Manager, Mr. T. I. Rose, Secretary, J. P. Braga, J. W. C. Bonnar, T. Skinner, Capt. W. E. Clarke, Chau Siu Ki, W. C. Jack, Lo Cheung Shiu, P. Nalin, E. Georg, L. Berindoague, H. Humphreys, and P. Durnerin.

The Secretary having read the notice convening the meeting the Chairman said: Gentlemen: The report and accounts having been in your hands for some time, I will, with your permission, take them as read. As a result of the working for the half year ending on 30th June last we have available for appropriation a sum of $705,270.19, out of which your Directors recommend that a dividend of 8%=$4 per share be paid, absorbing $200,000, that a further sum of $50,000 be placed to the credit of No. 1 Dock Extension Account, that $65,820 be written off the value of Kowloon Docks, $4,602.95 off the value of Cosmopolitan Dock, and that the balance of $384,847.24 be carried forward to a new account. It is hoped that this proposed distribution of profits will meet with your approval. The past half year's work, showing a net profit of $274,577.68, will not, I venture to think, be regarded as unsatisfactory in face of the extraordinary depression that existed, and I regret to say still exists in shipping the world over. This depression is brought forcibly to our notice by the number of vessels that have been laid up in this harbor during the past year for want of lucrative employment, and, you will readily understand, re-acts seriously on the business of a company such as ours. Further, in view of the fact that a certain proportion of the work executed during the period has been "New Work," the profits on which, as pointed out on a previous occasion, are necessarily small owing to keen competition, we may perhaps congratulate ourselves on the result now shown. The aggregate tonnage of vessels docked during the period under review is less than for some years past, there being a falling off under the heading of Merchant Shipping, and an increase under that of British and Foreign Men of War. Turning to the accounts, you will notice that the amount under the heading of Sundry Creditors shows a decrease of about $247,000 and the item Sundry Debtors is lower by $214,000 while the value of material on hand shows a reduction of $227,000. This is partly due to a revision in the system of ordering material, allowing the different establishments to draw on one another more freely and using up old stock. The Sub-Committee of Directors have concluded their investigations and have submitted their report to the full Board and it is reasonable to hope that beneficial results will accrue from their recommendations. You are doubtless aware that the recent disastrous typhoon has put a considerable amount of work into our hands—no very extensive repairs—but coming as it has done all at one time, the resources of our establishments and services of the staff are taxed to the utmost, particularly as a scarcity of labor is apparent. The tug and salvage boat "David Gillies" rendered yeoman services to shipping after the blow and the Company is to be congratulated in the acquisition of what will, I trust, prove a valuable asset. I am glad to be able to state that the Company's property suffered but little damage. Gentlemen: I do not know that I can add anything to what I have said, except to say that the prospects for the current half year, with the work we have already in hand, are favorable, and before moving the adoption of the report and accounts I shall be pleased to answer any questions that shareholders may wish to ask.

There being no questions, the Chairman proposed the adoption of the report and accounts as presented.

Mr. Bonnar, in seconding, said:—Mr. Chairman and Gentlemen: I have much pleasure in seconding the proposal that the Report and Accounts as presented, be adopted. During the period which these accounts cover business in every direction has been in a very dull and depressed condition, shipping being no exception. Advices from home are that a great many steamers are laid up for want of remunerative employment, and we know that in the East the same unsatisfactory state of affairs exists. Under these circumstances I think we ought to feel very thankful that our accounts show an increase in net profits of roughly $110,000 over the previous six months. I notice that $50,000 is being put to special account, No. 1 Dock Extension, and feel sure that this work when completed will bring in more grist to the mill. It is gratifying to learn that during the recent typhoon the Company suffered very little damage. I don't know whether we shall ever see the same prosperous years that the Company experienced in the past, some say we won't, but I for one am not without hope, and with a Board of Directors who have the Company's interest at heart, an energetic and willing staff, and up-to-date appliances, we can look forward with confidence to being able to take advantage of improvement in trade generally when it comes, and meet competition without fear. (Applause.)

The motion was carried unanimously.

The Chairman—That is all the business, gentlemen; thank you for your attendance. Dividend warrants will be ready to morrow on application.

GRAND HOTEL, LIMITED.—The following report of the directors for the half year ended June 30th, 1908, and recommendations made were adopted at the half yearly meeting held at Yokohama, July 30th:

The net profit for the half year after providing for general expenses, Directors' and Auditors' fees, Sundry Creditors, and bad or doubtful debts, amounts to *yen* 29,884.79, which it is proposed to apply as follows:—

In payment of a dividend of *yen* 4.00 per share for the half year	20,000.00
Set aside for necessary repairs of furniture	5,000.00
For depreciation	4,884.79

PERAK RUBBER PLANTATIONS, LIMITED.—The net profit for the year amounted to £695 against £1,014 the previous term and the report of the directors is pessimistic in tone. In concluding it says: "As rubber appears to cost the company 2s. 6d. per pound, the pious hope of the directors that the company will, in the coming year, join the ranks of dividend payers, seems unlikely to be realized. Much optimism is required in the face of labor difficulties, high capital, cost of estates and expensive production."

TRONOH MINES, LIMITED.—The report submitted at the first annual meeting held in London July 30th and covering the period including November 26th, 1906, and December 31st, 1907, show a debt to profit and loss of £4,396. The prospect for the future of the company appears bright.

YOKOHAMA SPECIE BANK.—The directors of the Yokohama Specie Bank announce that owing to the failure of firms in Yokohama, Kobe and Tientsin some stringency was felt by the bank during the last half-year but that Manchurian and foreign business has counteracted the effect and a dividend of 12% as usual will be declared.

HONGKONG, CANTON AND MACAO STEAMBOAT CO., LIMITED.—The following disposition of the net profits of this company were made at the meeting of the shareholders held August 11: dividend of $1.25 per share, $10,000 written off the book value of steamers, $3,600 written off wharves and properties, $12,500 transferred to Depreciation and Insurance Fund, $10,000 transferred to special repairs fund, balance of $17,755.84 carried forward to new account.

THE TAKU TUG AND LIGHTER CO., LIMITED.—An interim dividend of one tael per share for the half-year ended June 30th was declared August 1st.

UNITED ASBESTOS ORIENTAL AGENCY, LIMITED.—At the twelfth annual meeting of this company at Hongkong the following report of the general managers was presented for the year ended May 31st:

The balance at the credit of Profit and Loss Account, after writing off $3,528.37 for depreciation and including $1,360.41 brought forward from last year, is $23,154.76 which it is proposed to appropriate as follows:—To place to Reserve Fund, $10,000.00; To pay a dividend of 15 per cent. on Ordinary Shares, $5,940.00; To General Managers' Remuneration, $2,000.00; To pay a further dividend of 5 per cent. on Ordinary Shares, $1,980.00; To pay $19.80 per share on 100 Founders' Shares $1,980,00; To carry forward to New Account, $1,254.76—$23,145.76.

LAHAT MINES, LIMITED.—The report of the directors submitted at the first annual meeting of this company held in London, July 30th, would indicate that this company has arrived at the profit earning stage.

The balance sheet shows that the capital of £120,000 has been fully subscribed, and that the outstanding liabilities total £6,106.5.6d. The assets are represented by £102,235.16.10d on account of capital expenditure and £9,990.15.5 on account of development. Cash in hand and loans against security amounted to

£7,781.0.7. The total receipts on account of sale of tin and other items amounted to £8,032.0.7. There was a loss on the year's working of £4,396.18.2d.

New Gopeng, Limited.—The following is an excerpt from the report of the directors of this company covering the year ended April 30th, 1908:

The accounts show a profit of £7,366.15s., making, with the balance brought forward, £4,886 11s. 11d., a total of £12,253. 5s. 11d., out of which dividends at the rate of 23.¾ per cent. (4s. 9d. per share) have been paid, leaving a balance in hand of £2,753 5s. 11d.

Tekka Limited.—The first report of this company covering the period from the date of incorporation, January 21st, 1907, to January 31st, 1908, indicates progress in installation of plant at an outlay of £68,989 and revenue of £4,000 from leases of the 31-inch pipe. Since the annual report the hydraulic plant has been installed and operations to the extent of 15 tons for May and 14 tons for June, working only part of the time, are reported.

Vallambrosa Rubber Co., Limited.—The report for the year ended March 31st shows a net profit of £24,218 and with the balance forward from previous term after paying an interim dividend of 25% and deducting cost of machinery, etc., leaves £20,341 available. Out of this the directors recommend the distribution of a final dividend of 30% making in all 55% for the year.

The Bank of Japan.—The report submitted at the 52nd semi-annual meeting of this institution shows a net profit of yen 4,354,129.16, an increase over the previous term of Yen 400,000 and the reserve shows a credit of yen 2,325,000 or 80% of the capital of the bank. The following allotments were authorized:

	Yen.
Ordinary dividend at the rate of 6 per cent. per annum	900,000.00
Special dividend at the rate of 6 per cent. per annum	900,000.00
Reserve	1,000,000.00
Bonus and special allowances to directors, etc	219,000.00

The balance was carried forward to the next account.

The Toyo Industrial Bank.—The report submitted by the directors at the 13th semi-annual meeting shows that the net profits for the term were yen 867,860 out of which the following distribution was authorized:

	Yen.
Reserve to make losses good	104,000.00
Reserve for equalizing dividends	26,000.00
Ordinary dividend	406,250.00
Special dividend	243,750.00
Bonus to Directors	25,000.00

The balance, *yen* 62,860.43, was carried forward to next account.

Labu Rubber Co., Limited.—The report for the term including February 9th and December 31st, 1907, shows a profit of £2,931 which has been carried forward. The announcement is made that an interim dividend of 6% per annum will be declared during the present term.

Yokohama Engine and Iron Works.—The report submitted July 29th at the 21st annual meeting and recommendations adopted follow:

The net profit for the year (including the sum of Y12,477.04 brought forward from 31st May, 1907), after payment of a 2.50 a share Interim Dividend of Y19,500 in January last and providing for depreciation of buildings and machinery and payment of Directors' and Auditors' fees, amounts to Y73,921.19, which the Directors recommend should be appropriated as follows:

	Yen.
In payment of Final Dividend for the year of Y2.50 per share	19,500.00
To Transfer to Reserve Fund	25,000.00
Balance to be carried forward	29,421.19

Kirin Brewing Co.—At the regular meeting of the shareholders of this company last month the following statement was adopted and the recommendations approved:

	Yen.
Net profit	96,835
Brought from last account	15,502
Total	112,337
Legal reserve	5,000
To bonus	5,000
Dividend to shareholders (8 per cent. per annum)	100,000
Carried to next account	2,337

Dai Ishi Ginko (First Bank).—The following statement for the last half-year was adopted at the regular meeting last month and distribution authorized as follows:

	Yen.
Net profit	959,684
Brought from last term	447,957
Total	1,407,645
To reserve	300,000
To reserve for Korea branch	100,000
To bonus	47,980
Dividend on old shares (10 per cent. per annum)	250,000
Dividend to new shares (10 per cent. per annum)	170,000
Carried to next account	539,665

Bangkok Manufacturing Co., Limited.—The report for the half year ended June 30th was adopted at the regular meeting last month and the recommendation of the directors approved as follows:

The gross profit on the Company's operations for the six months amounted to Ticals 87,282.73 to which must be added Ticals 40,719.76 brought forward from last half-year giving a total of Ticals 128,002.49 available for distribution.

After allowing for Depreciation, etc., as per Profit and Loss Account absorbing Ticals 43,076.13 it is recommended to write off the item of Ticals 50,000 Goodwill, to pay a dividend of 4 per cent for the half-year amounting to Ticals 16,000.—, to carry Ticals 10,000 to Reserve and to carry forward Ticals 8,926.36 to next half year.

The Empire Hemp Co.—The second general meeting of this company was held last month and the following statement of the directors for the term and their recommendations were adopted:

	Yen.
Net profit	355,278
Brought from last term	2,560
Total	357,838
Legal reserve	18,000
Special reserve	30,000
Dividend to shareholders (12 per cent. per annum)	192,300
Dividend on new shares (12 per cent. per annum)	88,000
Bonus	25,000
Carried to next account	4,838

The Fifteenth Bank.—The following report of the directors with recommendations were presented at the regular meeting of the shareholders and adopted:

	Yen.
Net profit	2,557,878
Brought from last term	657,817
Total	3,215,695
To reserves	140,000
To bonus	50,000
Dividend (9 per cent. per annum)	810,000
Reserves for construction fund of the Nihonbashi branch	50,000
Reserves for loans uncollected	1,500,000
Carried forward	665,695

Namboku Oil Company.—The semi-annual meeting of this company held at the end of August resulted in the distribution of a 10% per annum dividend. At a recent extraordinary meeting it was decided to amalgamate with the Hoden Oil Company.

The Mitsui Bank.—The net profit for the half-year added to yen 853,923 brought forward from former account made yen 2,289,742 available for distribution out of which yen 500,000 was placed in the general reserve and yen 500,000 placed in a special reserve; 420,000 distributed among the partners as dividend and a balance of 869,742 carried forward. The bank reserve is now yen 11,500,000.

The Tokyo Gas Works, Limited.—The income during the term shows an increase of 20% over the previous six months but in consequence of large extensions and incidental expenses, a dividend of 13% was declared instead of the usual 15% dividend.

Fuji Gas Cotton Mill, Limited.—The following accounts were submitted by the directors at the regular half-yearly meeting last month and adopted and the recommendations approved:

	Yen.
Net profit	800,492
Brought from last term	588,562
Total	1,389,054
Legal reserve	40,024
Reserve against losses	40,024
Bonus to mechanics and sanitary educational and relief fund	40,024
Bonus to clerks and pension fund	40,024
Bonus to directors	40,024
Dividend to shareholders (18 per cent. per annum)	681,580
Carried to next account	507,354

The Shanghai Tug and Lighter Co., Limited.—An interim dividend of 3.5% on preference and ordinary shares has been authorized for the half year ended June 30th.

Bukit Rajah Rubber Company, Limited.—The profit for the year ended March 31st was £21,706 out of which a final dividend of 20% making 30% in all was paid and a balance of £1,696 carried forward.

Federated (Selangor) Rubber Co., Limited.—The net profit for the year was £2,237 out of which a dividend of 8% was paid and a balance of £592 carried forward.

Straits Settlements (Betam) Rubber Co., Limited.—Advices from London to the Malay Mail announce a dividend of 4%. The report for the previous year showed a net profit of £1,745 which was carried forward.

The Hokaido Colliery and Steamship Co.—The following statement of accounts and recommendations were submitted by the directors at the semi-annual meeting held last month and adopted:

Total Earnings		4,702,979
Total Expenses		3,209,107
Net Earnings		1,493,871
Deduct payments:—		
For Interest on Debentures	147,692	
For Mining Reserve	89,100	
For Reserve for Depreciation of Ships's Value	28,200	
For Reserve for Difference on Subscription of Debentures	18,000	
Total		282,992
Balance being final Net Profit		1,210,879
Net profit of present time	1,210,879	
Amount brought over from last account	604,915	
Total		1,815,794
To legal reserve	61,000	
To Dividend (rate of 14% per annum)	1,417,500	
3.50 yen per share of 1st, 2nd, 3rd and 4th issues		
0.875 per share of 5th issue		

To bonus	30,270	
Total		1,508,770
Amount to be carried forward to next account		307,024

IMPERIAL COMMERCIAL BANK.—The loss of 580,000 yen was the history of the last six months of this bank and at the meeting held in Tokyo last month it was decided to strike out the 580,000 loss and enter a profit of yen 100,000 in the statement of account and in order to adjust matters a new account called an adjustment account was opened and the yen 680,000 entered on the debit side. The statement of account then stood:

	Yen.
The net profit of the term under review	100,389.15
Forwarded from the last account	16,126.84
Total (which is carried forward to the next account.)	116,515.99

SHANTUNG RAILWAY CO.—The net profits for the year 1907 were £145,000, an increase over previous account of £12,000 out of which a dividend of 4.75%, an increase of .5% was declared. With the completion of the Tientsin Pukao Railway it is believed that there will be a marked extension in the coal trade.

GRAND HOTEL DES WAGONS LITS, LIMITED, PEKING.—This company has declared a dividend of 8.5% and carried forward Tls. 840 besides paying a small dividend on the founders' shares.

THE TANKO KAISHA.—This company has paid a dividend of 14% for the term ended June 30th.

TOKYO FARMERS' AND MECHANICS' BANK.—The following statement of accounts was approved and the recommendations adopted for the distribution of the net profits for the last six months:

	Yen
Gross receipt	104,380
Brought from last term	15,603
Total	119,983
Disbursement	59,615
Reserves against losses	10,000
Reserves for equalization of dividend	5,000
Reserves for the construction fund of new office	3,000
First dividend (5% per annum)	13,625
Bonus	1,600
Second dividend (5% per annum)	13,625
Carried to next account	13,518

TOKYO WOOLEN FACTORY, LIMITED.—The net profits for the half year were yen 43,275 including yen 3,152 brought forward and out of which a dividend of 8% per annum was paid and the balance of 2,275 carried forward.

OSAKA SHOSEN KAISHA.—A dividend of 6% per annum was declared for the last half year. At the meeting the chairman announced that arrangements have been concluded with the Chicago, Milwaukee and St. Paul Railway for opening a new Pacific service.

DAI NIPPON BREWERY.—The semi-annual meeting of this company was held last month and the following statement of accounts was approved and the recommendations adopted:

Profit during the term	506,038
Brought from last term	357,392
Total	863,430
Legal reserves	30,000
Bonus	25,301
Dividend (15% per annum)	420,000
Carried forward	388,129

OJI PAPER MILL CO.—At the semi-annual meeting held last month the following statement of accounts was approved and the recommendations for distribution adopted:

	Yen.
Net profit	116,117
Brought from last term	107,017
Total	223,134
Legal reserves	6,000
Special reserve	4,000
Dividend to shareholders (6 per cent. per annum)	108,000
Bonus	10,000
Carried forward	95,134

NIPPON RAILWAY CO.—At the general meeting of this company held last month a dividend of 12% per annum was declared.

NIPPON DAI ICHI BREWERY CO.—At the regular meeting held last month a dividend of 8% per annum was declared for the term.

DEUTSCH-ASIATISCHE BANK.—The net profits for the year were Shanghai Tls. 960,943 (Tls. 869,624 for 1907), out of which Tls. 83,948 (Tls. 75,024) are applied to reserve purposes, while Tls. 32,609 (Tls. 26,087) are paid as directors' fees, and Tls. 675,000 as a dividend of m.225 (m.200). The staff fund receives Tls. 50,000, as in the previous year, and Tls. 119,387 (Tls. 118,513) are carried to new account.

ORIENTAL SUGAR MANUFACTURING CO. (TOYO SEITO KAISHA).—The net profits of this company during the last half year amounted to yen 23,431 which was carried forward.

KANEGAFUCHI SPINNING CO.—The report for the half year shows a net profit of -Y-1,026,876 including a surplus of -Y-750,402 brought over from the preceding period. Of this sum, -Y-628,340 was appropriated for a dividend at the rate of 16 per cent. per annum, -Y-100,000 was added to the reserves, -Y-50,000 paid as bonuses to officials, and -Y-748,536 carried forward.

THE BRUSEH HYDRAULIC TIN MINING CO., LIMITED.—Out of the net profit for the year $25,000 was placed in a special reserve, $60,000 absorbed in paying a 10% dividend and a balance of $3,843 carried forward.

HANDELSVEREENIGING AMSTERDAM.—The report for the year 1907 is to hand, and shows that although in one department, that of the agricultural estates, there was a working loss owing to a failure of the coffee crop, the balance of profit amounts to ƒ795,842. The Managing Directors propose to issue a sixth series of shares to the extent of ƒ1,250,000. The dividend is the same as that for five years past, namely 10 per cent. The historical statistics of the Company show that it began in 1879 with a capital of ƒ1,250,000, and made for the first year a profit of ƒ233,506. It has now a capital of ƒ6,250,000 and has made a total of net profits of ƒ1,486,169, carrying over for next year's account ƒ500,000. There is also a reserve of ƒ1,500,000.

CICELY RUBBER ESTATES COMPANY.—The net amount at the end of the year was £5,236 out of which a final dividend of 22.5% making 37.5% in all for the year on ordinary shares and 42.5% on preference shares.

SEVENTY-SIXTH BANK, YOKOHAMA.—The net income for the first half of the year was yen 83,189 and an interim dividend of 8% per annum was declared.

NIPPON UNION TRANSPORTATION CO., YOKOHAMA.—The net profit for the half-year ended May 31st was yen 25,819,111 out of which an interim dividend was declared at the rate of 10% per annum.

THE HONGKONG & SHANGHAI BANKING CORPORATION.—Minutes of the Ordinary Half-Yearly Meeting of the above-named Corporation held at the City Hall, Hongkong, at noon on 22nd August, 1908.—The Eighty-sixth Ordinary Half-Yearly General Meeting of the Shareholders of the Hongkong & Shanghai Banking Corporation was held on the 22nd instant, in the City Hall, when the eighty-sixth Report of the Court of Directors was submitted. Mr. E. Shellim (Chairman), presided, and there were present:—Hon. Mr. W. J. Gresson, Messrs. E. G. Barrett, C. G. R. Brodersen, G. Friesland, C. S. Gubbay, W. Helms, R. Shewan, Hon. Mr. H. A. W. Slade and Mr. H. E. Tomkins (Directors), Mr. J. R. M. Smith (Chief Manager), Messrs. C. E. Anton, A. V. Apear, J. Barton, J. F. Cox-Edwards, Wm. Dunbar, J. K. Grant, E. H. Hinds, Ho Fook, Henry Humphreys, R. R. Hynd, A. C. Hynes, H. C. Joass, Ellis Kadoorie, Lau Pun Chiu, Lo Cheung Shiu, J. M. E. Machado, E. F. Mackay, H. N. Mody, C. Pemberton, J. C. Peter, W. Hutton Potts, E. H. Ray, C. A. da Roza, Dr. J. H. Sanders, Mr. H. Percy Smith, Hon. Mr. Murray Stewart, Messrs. F. H. Thomas, A. F. Warrack, Wong Leung Him and others.

The Chief Manager read the notice convening the meeting.

The Chairman having read the Report already published said:—Gentlemen, I need hardly say that it gives the Directors great pleasure to present the 86th Ordinary Half-Yearly report which I have just read. The Statement of Assets and Liabilities now before you exhibits an active and increasing business and the Profit and Loss Account shows that we have had a satisfactory half-year.

I think I may count, with confidence, upon your approval of the proposed distribution, viz:—

- a dividend of £2 per share to be paid,
- $5 lacs to be added to the Silver Reserve Fund,
- $2½ lacs to be written off Bank Premises Account,
- the balance of about $20 lacs to be carried forward to the next half-year, or practically the amount brought in from the previous one.

In inviting you to compare the Statement of Assets and Liabilities with that of the 31st December last I have the satisfaction of being able to point to a growth in the figures under nearly every heading. On the one side we see the large increase of $300 lacs in Current Accounts and Fixed Deposits, gold and silver together, and this addition to our operative funds is represented on the other side of the account by a like increase in the total of Bills Receivable, Bills Discounted, Loans and Credits, Cash and Bullion in hand and in transit. The total assets of the Bank now amount to the large sum of 333 millions of dollars.

The high price of money in Europe referred to at the last meeting by my predecessor in the Chair is now a thing of the past and it has been succeeded by a period of financial ease and an accumulation of funds awaiting employment; this is accounted for to some extent by less money being required to finance our trade owing to the fall that has taken place in the price of most products, but is mainly due to a shrinkage of trade throughout the world. It therefore suited the Bank, towards the end of the half-year under review, to hold our bills in London until maturity instead of re-discounting them, and you will observe that the amount of bills re-discounted outstanding is considerably less than the figures shown in previous reports. Outstanding exchange purchases at the end of last half-year were based on the then high rates for money ruling in Europe, and our accounts benefited accordingly by the heavy fall in the rate of home discounts. Money is also abundant in the chief business centres in China, more especially in Shanghai where the stock of sycee is abnormally large. In Japan the Japanese Banks have for some time past adopted a conservative policy with regard to their advances and money there continues to command high rates. Several of the large manufacturing companies in the country have however lately been able to borrow money in Europe and America, and this financial help to Japan's productive enterprises cannot fail to have beneficial effects not only on the trade but also on the general finances of the country.

India is still suffering from the effects of bad crops and low prices but nevertheless a considerable amount of Bar Silver was imported by the Bazaar during the half-year. These conditions brought about a very weak exchange market, and to prevent any heavy fall in rates the Indian Government decided to offer weekly

for sale at 1|3 29|32 per Rupee their Sterling demand drafts on London. Latest advices record a favorable monsoon over the greater part of the country and I trust the result will soon be apparent in a renewal of prosperity.

For the first three months of this year the position of the Silk market was in a very unsatisfactory condition and at one time a panic in the trade was feared. This was happily averted. In America an improvement in the demand has taken place and in Europe the new season has commenced under favorable auspices; stocks have been considerably reduced but remain sufficiently large to keep prices down to a level that should encourage consumption. In spite of the severe crisis of last season the total of the combined exports from China and Japan shows that the trade is one which is still on the increase.

It is matter for regret that no indications are yet apparent that the Chinese Government are preparing to give effect to their expressed intention of reforming the national currency, and the confusion and disturbance to trade, caused by the excessive and uncontrolled coining of silver and copper subsidiary coins, continue. Further complications threaten to arise out of the issue of notes by various Chinese Banks throughout the Empire, but it is to be hoped that the Central Government will before long realize the necessity of taking steps to ensure that all such issues are supported by adequate and controlled reserves of uniform value.

As regards prospects in the Far East, it was unfortunate that just when a long continuance of trade depression, due to local causes, might have been expected to change for the better the financial crisis occurred in America. This affected the European money markets, causing a contraction of credit, and proved to be the forerunner of the prevailing restriction of trade all over the world. Though as yet there are no clear signs of the long deferred reaction, still cheap money and diminishing stocks are factors which must sooner or later bring about a commercial revival and I think we may therefore continue to take a hopeful view of the future. (Applause).

Before moving the adoption of the Report and Accounts as presented, I shall be pleased to answer, to the best of my ability, any questions you may put to the Chair.

No questions being asked the Chairman moved the adoption of the Report and Accounts.

Mr. C. E. Anton:—It gives me much pleasure to second the adoption of the Report and Accounts and in doing so I feel justified in saying that shareholders will have received with very great satisfaction the statement of the six months' working, the more so seeing that the period has been one of restricted trade in nearly all directions. The Directorate and Management have good cause to congratulate themselves on the result, and as pointed out by the Chairman it is very gratifying to notice the large increase in the figures under the various headings of the accounts presented. The general depression in the Far East has been very protracted and of a far-reaching character but, although the end of it is not yet in sight, I think that in the natural course of events we may confidently look forward to a return of better times—perhaps at no very distant date—in which we may rest assured the Bank will participate by increased prosperity. (Applause.) That competition in all classes of business in the East has become very severe cannot be gainsaid, and I take it that in banking there is no exception, and for that and other reasons it seems to me the policy pursued of continuing to add to the Bank's reserves is a wise and prudent measure. (Applause.)

The motion was carried unanimously.

Mr. Henry Humphreys proposed that the appointment of Mr. C. S. Gubbay, Mr. E. G. Barrett, Mr. C. G. R. Brodersen, the Hon. Mr. W. J. Gresson and Mr. W. Helms as Directors be confirmed.

Mr. W. Dunbar seconded and the motion was agreed to.

The Chairman:—That is all the business gentlemen; thank you for your attendance. Dividend warrants will be ready on Monday.

ESTIMATES FOR AMERICAN CONSULAR OFFICES IN CHINA, KOREA, AND JAPAN

(Continued from page 172)

The lot is 110.6 feet front, 214 feet deep. The value of the building on the lot is very small.

The contemplated buildings should include a residence and be of brick, with stone trimmings, two stories high, each story to have an 8 foot veranda all around. The area of the building would be 82 by 66 feet. The first floor should contain consul's office, 24 by 18 feet; general office, 24 by 22 feet; waiting room, 22 by 16 feet, which could also be used by the marine hospital surgeon; storage room, 18 by 16 feet, and drawing and dining rooms, each 24 by 18 feet. The second floor should have two bedrooms, each 22 by 24 feet; two bedrooms, each 24 by 18 feet; sitting rooms, 24 by 16 feet, and necessary bathrooms, closets, etc.

Servants' quarters, 72 by 18 feet, should be two stories high, 14 feet from the main building, and reached by a covered way.

The best brick can be purchased for $9 a thousand and seconds at $6 and $7.50 a thousand.

RECOMMENDATIONS

Purchase of ground, the lot mentioned by the consul, if possible	$25,000
Erection of buildings	30,000
Total	$55,000

The rented consulate here is very conveniently located and the quarters themselves convenient and comfortable, but are subject to the probability to which all rented consulates are liable—that of increased rent or of being compelled to vacate.

The British Government has just commenced the erection of a consultate here at a cost of $28,500 for the building, that Government having been previously the owner of the ground. It is to be a two story brick building, with stone trimmings, including a residence for the consul. The structure is to be 73 feet by 65 feet, exclusive of servants' quarters, they being 73 by 17 feet and two stories. The plan of the ground floor provides for a consul's office 22 by 17 feet; an office for the assistant, 14 by 17 feet; a waiting room, 14 by 16 feet; a storeroom, 13½ by 14 feet; two entrances, 8 feet in width, on the front and north; two rooms on the south, each 22 by 17 feet, to be used as drawing and dining rooms. The second floor is exclusively for residence purposes, there being a sitting room, four bedrooms, two dressing rooms, bathrooms, etc. The compound is 214 feet in depth by 110 feet in width, and faces the main thoroughfare on the east.

SEOUL.

Here the United States owns the ground and buildings, and the Consul General says that the present consular buildings and office are extremely commodious and attractive. The grounds are spacious and in excellent condition. The main office building is separate, and is a very roomy, good building, with a large fireproof stone vault attached. The only criticism is in respect to the sanitary condition of the living rooms in the consular building, which are built so low and close to the ground as to be damp and unhealthful. They are in such poor repair that they should be torn down and a new building erected at a cost of $10,000.

RECOMMENDATIONS.

Erection of new residence building	$10,000

TAMSUI.

The present location of the rented consulate is not suitable. It is in the Chinese city of Daitohe, but should be situated in the Japanese section, which has been reconstructed on modern lines since the Japanese occupation. The Chinese city, Daitohe, has consequently become but a suburb of the Japanese capital Taipeh. The Japanese are doing their best to make Taipeh a model city, having already provided it with broad, well paved streets, splendid drains, beautiful parks and modern well constructed administration buildings. The Chinese huddle together in Daitohe much as Chinese do in any Chinese city, and landlords find it a better investment to rent to Chinese than to foreigners, for the latter require more floor space and are reluctant to pay the price paid by Chinese for similar space.

The consul reports having secured an option from the Japanese Government on a site which is considered the most desirable in the city. It is located in the best portion of the city, 100 yards from the residence of the Governor General, surrounded by public buildings and military parade grounds, thus insuring the most desirable surroundings. It is part of the ground set apart by the insular authorities for a public square and park, and the amount allotted by the Japanese, 1.7 acres, will be sold to the United States only upon the condition that the buildings erected thereon shall conform to their general plans for the beautification of the city; otherwise they prefer to convert the whole into a park. This piece can be bought for $3,000, which includes all expenses incurred in filling it up to a level with the roads. The laying out and planting of a garden would involve an expenditure of $500 more.

The consul estimates the cost of a building at $20,300. It is designed to withstand the severe typhoons prevalent during each autumn, as well as to withstand the unsanitary conditions arising during the rainy season. It is designed to serve the greatest possible comfort during the long hot summer, and it has been planned as a private residence as well as for consular purposes.

The population of the island is 3,000,000; its area is 15,000 square miles. Practically the entire crop of tea goes to America.

RECOMMENDATIONS.

Purchase of ground	$3,000
Erection of buildings	20,300
Walls about grounds	2,000
Paths, wells and incidentals	2,000
Total	$27,300

YOKOHAMA

The United States owns ground in Yokohama, now occupied by the consulate, 99 by 225 feet, deeded by the Japanese Government with the proviso that the United States use it for a consulate. The Consul General says it is in a very desirable location. The buildings, however, are owned by private parties, and can be purchased for $4,493.

Consul General Miller recommends that a new building be erected, constructed of stone, two stories in height, earthquake proof, with iron shutters, metal ceilings and steel roof, and basement for servants' quarters, heating plant, etc., at a cost of $75,000. Eight rooms are required on the ground floor, viz., one for post office and waiting room, 20 by 20 feet; one for stenographer, 14 by 20 feet; one for shipping office, 42 by 20 feet; one for vault, 12 by 18 feet; one for Vice Consul General, 12 by 18 feet; one for seamen's room, 12 by 28 feet, and a hall, 12 by 70 feet. Eight rooms are required on the second floor, viz., two for navy paymaster, 16 by 20 and 18 by 20 feet; one for inspector general 16 by 20 feet; one for statistical library and meeting room for American Asiatic Association, 20 by 42 feet; two for Treasury agent, 21 by 21 and 21 by 16 and two for Marine Hospital Service, 12 by 16 and 21 by 21 feet, with a hall 12 by 50 feet. Sketch of the floor plans of the two stories was enclosed by the Consul General.

He also recommends that a consular residence be erected on this ground, at a cost of $25,000, but encloses no plans.

RECOMMENDATIONS

Purchase of old buildings now on the ground	$4,493
Erection of office building	75,000
Erection of residence	25,000
Total	$104,493

The sketches and photographs which were contained in House Document No. 510, Fifty-ninth Congress, second session, have not been included in the present letter.

I have the honor to be, sir, your obedient servant,

ELIHU ROOT.

The Secretary of the Treasury.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

WAIPORA GENERATING PLANT.—This important hydro-electric plant in New Zealand suffered severely from floods which practically destroyed the flume that carried the water to the plant. The damage is estimated at about $90,000.

PAKLAT TRAMWAY.—A small tramway about one mile and one-fifth in length has been completed by the Menam Motor Boat Company to connect its service with the Siam Electric Co.'s Service. The line runs about three miles south of Bangkok.

OSHIMA HYDRO-ELECTRIC COMPANY.—The generating plant of this company has been put in operation and now the city of Hakodate is being supplied with light and power generated from the power plant at Onuma. This company has placed a loan of 400,000 yen with banks in Tokyo.

BANGKOK DOCK CO.'S ENTERPRISE.—The *Siam Observer* announces the construction by the Bangkok Dock Co. of the first dynamo turned out by any manufacturing plant in Central Asia and bodes well for engineering enterprise for Siam. This dynamo is driven by a gas engine.

FUJI ELECTRIC TRAMWAY.—Dr. Saburi, representing Tokyo capitalists, has been investigating the electrical invasion of the Alps with excursion trains, has reported that similar methods of transportation may be successfully inaugurated to climb the famous Fujiyama and the project will soon be under way.

TELEPHONE SERVICE FOR FUJIYAMA.—A telephone service is being installed and many stations established along the ascent to the mountain. According to the *Chamber of Commerce Journal* it is proposed to instal an electric lighting system as well and provide for artistic illumination of the mountain top at night.

PENANG ELECTRIC SUPPLY EXTENSION.—At a recent meeting of the municipal commission a loan of $100,000 was authorised for the duplicating of the plant so as to be prepared for emergencies, to extend the system and to replace defective cables. This action was based on the report of Acting Electrical Engineer Haslam.

KOSICHANG CABLE.—Alterations in the original survey for the laying of the cable has caused delay but this will soon be overcome with the arrival at Bangkok of the manager of the Eastern Extension Telegraph Co. who has the matter in charge. The linking of Kohsichang with Bangkok, says the *Bangkok Times*, will prove of great value alike to the government and the shipping community.

ADELAIDE TRAMWAYS.—The construction of the system under way has been greatly delayed by the slowness with which the necessary materials are being delivered. The agreement with the government provided that the system would be completed and ready for operation by the first of November but there is every reason to believe that the lines will not be ready for traffic by the end of the year.

ELECTRIC PLANT FOR ZAMBOANGA.—A stock company has been organized with a capital of 50,000 pesos fully subscribed for the purpose of installing an electric plant to supply light and power to the city. The company will also undertake to supply the city with water. The officers of the company are as follows: P. J. Moore, president; D. G. Beebe, vice-president; John Spirig, treasurer; Bernardo Macrohon, secretary.

CHINESE TELEGRAPHS.—A compromise has been effected between the shareholders of the Imperial Chinese Telegraph Administration at Shanghai and the Ministry of Posts and Communications, the former having agreed to accept $180 each for their shares instead of $170 as originally offered. As a result of the negotiations there is prospect of an early control of the telegraphs of the empire by the government and the installation of the extensive lines contemplated to make the system most effective.

ALBAY AND CAMARINES TELEGRAPH AND TELEPHONE FRANCHISE.—The Philippine Government has granted a franchise to Charles W. Carson to install a system of communication in the provinces referred to. Another and similar franchise has been proposed for the island of Panay. These systems include the right to install systems not only in any of the municipalities but connecting them as well. This system will, when completed, provide long distance telephone connection throughout the principal provinces and ultimately place all municipalities in communication with the insular capital.

KEIHIN ELECTRIC RAILWAY.—This company has concluded a British loan for 2,000,000 yen to be utilized in constructing an extension between Shinagawa and Aoyama, a distance of over four miles, together with a two mile coast line connecting Kamata and Haneda and the doubling of the Kamata-Haneda line for a distance of about two miles. The company is also considering the advisability of double-decking the cars so as to increase the carrying capacity of the system. The present capacity is 50,000 a day and it is believed that the traffic may be doubled by the innovation. In addition to the electric trams it is the purpose of the company to supply light and power to the different localities along the Shinagawa and Kanagawa line.

SINGAPORE ELECTRIC TRAMWAYS.—The *Singapore Free Press* takes occasion to explain an advertisement in the Government Gazette referring to the liquidation of the Singapore Tramways Limited and says:

"A notice appears in the last issue of the Government Gazette, advertising the liquidation of the Singapore Tramways Limited, which might be misleading without a line of explanation.

"The liquidating Company must not be mistaken for the Singapore *Electric* Tramways Limited which is the Company that now owns and operates the Tramways of Singapore.

"The present Company purchased its rights and undertaking from the Singapore Tramways Limited, and hence the liquidation now of the latter as a formality."

SYDNEY TRAMWAYS.—The new turbine generator for the Ultimo power house at Sydney will not be installed until September next owing to delays in England occasioned by the engineers' strike. As a result, says the *Australian Hardware Journal*, it is impossible to supply any additional current, and all the new tram lines will have to wait. Continuing, that journal says:

"Few have any adequate idea of the enormous extension of tramways around the city during the past half-year, and still going on in all directions. Some important extensions are being made in the vicinity of the garbage destructor at Moore Park. A new car shed and handsome offices have been erected, costing close on £30,000, which have vastly improved that locality, and but for the unsightly tip and the destructor would become a desirable place for residences."

JAPANESE WIRELESS TELEGRAPH TOLLS.—The Japanese department of communications has issued the following schedule of tolls for wireless service:

Coast fee—

For messages to be received in or despatched from Japan, through coast offices:

60 *sen*, not exceeding five words.
12 *sen* per additional word.

For other messages:

24 *sen* per word.

Fee on board—

16 *sen* per word.

In addition to the aforesaid coast and vessel fees ordinary telegraph fees must be paid at the following rate:—

For messages to be received in or dispatched from the main land:

25 *sen*, not exceeding five words.
5 *sen* per additional word.

For messages to be received in or dispatched from Formosa, Shanghai and the Bonin Islands:

Official messages—

25 *sen*, not exceeding five words.
5 *sen* per additional word.

Private messages—

50 *sen*, not exceeding five words.
10 *sen* per additional word.

RAILWAYS AND RAILWAY SUPPLIES

NANKING CITY RAILWAY.—This line was opened to traffic the last week in August.

SHANTUNG RAILWAY.—The total revenue for the term ended June 30th is announced to be $1,200,000.

YOKOHAMA RAILWAY.—The extension between Kanagawa and Hachioji was opened the last of August.

PEKING AND MUKDEN TRAFFIC.—Railway traffic between these two points was opened on September first.

MANILA RAILWAY CO.—The new line from Manila to Batangas was opened to traffic last month as far as Biñan.

FORMOSAN RAILWAY HOTEL.—The railway hotel at Taikohu is about completed and will prove a boon to that section.

MUKDEN RAILWAY DEPOT.—The new building constructed by the Imperial Railways of North China was opened last month.

PEKING-KALGAN CONSTRUCTION.—The recent floods destroyed much of the track near Nankou but this has been promptly repaired.

TEHCHOW ARSENAL BRANCH.—The officials of this institution have petitioned for a branch to connect the works with the Tientsin-Pukow.

KIACHOW-TSINANFU RAILWAY.—The German government has agreed to sell back the railway to the Chinese government for Tls. 15,000,000.

RAILWAY BRIDGES FOR TIENTSIN-PUKOW.—Eight large bridges have been ordered for the northern section from the Hanyang Iron and Steel Works.

INDIAN RAILWAYS.—The total mileage of railways under operation in India March 31st, 1908, was 30,286 with 2,457 miles undergoing construction.

TOKAIDO RAILWAY.—The doubling of this line is being expedited by the Railway Department and the new station at Ashiya was opened September 1st.

CANTON-HANKOW.—Advices from Yingtak state that in view of the effect of the recent floods, it has been decided to change the road bed in a few instances.

BRIDGE WORK ON THE TIENTSIN-PUKOW RAILWAY.—The Yangtze Engine Works have the contract for the construction of the bridges on the Northern Division.

THE BOSO RAILWAY.—The purchase price of this line has been fixed at 2,156,000 yen and the Japanese Government will confer on the company 960,000 in bonds.

ANTUNG-MUKDEN RAILWAY.—Liaoyang may not have the benefit of this line if changes proposed in the route are confirmed. Kwantienshien may be substituted.

JAPANESE ENTERPRISE IN MANCHURIA.—The profit from the railway section south of Harbin controlled and operated by the Japanese has exceeded yen 4,000,000 per annum.

SUNGEI UJONG RAILWAY CO. TRANSFER.—The property operated by this company passed into the hands of the Federated State Railways August 1st. The old staff, generally, was retained.

NORTHERN MANCHURIAN RAILWAY.—The Peking government has sanctioned the construction of line connecting Tsitsihar and Aigun, a distance of 240 miles, to be completed in four years.

TRANS-FORMOSAN RAILWAY.—The ceremony in connection with the opening of this line will be held in October at Taichu and will be presided over by a prince of the Imperial family of Japan.

PEKING-HANKOW RAILWAY.—The result of the disastrous floods along this line has been repaired and traffic resumed August 20th between Peking and Hankow where the damage was greatest.

YELLOW RIVER RAILWAY BRIDGE.—It has been decided to span the river along the line of the Tientsin-Pukow Railway with a steel structure at Lokow, opposite Chinanfu, the capital of Shantung.

HSINMINTUN FENGTIEN RAILWAY.—The redemption of this line by the government has been recommended to the throne by the board of Posts and Communications at Peking. The price named is Tls. 3,400,000.

TIENTSIN BRANCH STATION.—The site for a branch station to be erected in Tientsin in connection with the Tientsin-Pukow Railway for the convenience of the commercial community is now the subject of discussion.

AMOY-CHIANG CHU RAILWAY.—With the completion of this line it is anticipated that every effort will be made to extend it so as to connect with the Peking Hankow where connections would be made between Amoy and Paris.

CHANGCHUN-KIRIN RAILWAY.—An effort is being made by the influential Chinese capitalists of Kirin to secure control of this line and at a recent meeting of those interested the sum of Tls. 2,000,000 was subscribed for this purpose.

DAI NIPPON KIDO KAISHA.—This company was recently launched with a capital of yen 2,335,000 an amalgamation of the eight light railways in Fukushima, Atami, Shizuoka, Ise, Kumamoto, Hamamatsu, Hiroshima and Yamaguchi.

INDIAN RAILWAY CONFERENCE ASSOCIATION.—This association convened at Simla September 21st for the purpose of discussing among other things the municipal taxation of railways, electric lighting for trains and question of tariff simplification.

STEEL RAILS FOR AUSTRALIA.—The relaying of the lines controlled and operated by the New South Wales Government is going on apace. A recent shipment received comprising 12,273 steel rails and a large quantity of fishplates is for this purpose.

MILITARY RAILWAY BRANCHES.—The Peking government is considering the advisability of constructing branches from the different main lines throughout the empire so as to make connections with the different naval stations and military depots for strategic purposes.

CANTON-HANKOW RAILWAY.—The construction work from Wuchang for 148 miles will be under the supervision of Engineer G. Moore who is also Engineer-in-Chief of the Hankow Waterworks. The first sod will be turned in October and there is every prospect of rapid progress.

KOWLOON-CANTON RAILWAY.—The desire of the Peking government to appoint an advisor to the British Syndicate in charge of this section is not welcomed by the British company and the president of the Board of Posts and Communications has filed a protest through the Chinese minister to London.

RUSSO-JAPANESE RAILWAY CONFERENCE.—This conference will be convened at St. Petersburg in October for the purpose of discussing the establishment of a junction between the South Manchurian and the Chinese Eastern Railway and, in addition, junctions and working agreements with Chinese lines.

TUNNELING IN SIAM.—The Royal Railway Department of Siam has undertaken to run tunnels through the watershed between Menam Yom and Menam Yai. One tunnel at Kao Pung when completed will be 400 meters in length and the other 100 meters. The work is progressing favorably, says the *Bangkok Times*.

CANTON-MACAO RAILWAY.—The Chinese Director, who made a contract with the Portuguese company for the construction of this line, has petitioned Peking to cancel the contract for the reason that the company has needlessly delayed construction. He also urges that the government should press the construction of this important line with all vigor.

CENTRAL WESTERN RAILWAY EXTENSION.—The new line connecting Nakatsu and Sakashita, a distance of six miles, was opened on August 1st. This line passes through difficult country and the construction of a steel bridge over the Kiso River, a very turbulent stream, is evidence of unusual engineering enterprise. This line taps a district rich in granite deposits.

CANTON-HANKOW LOAN.—Director General Chang Chih-Tung of the proposed Canton-Hankow trunk line is opening negotiations for a loan of Tls. 50,000,000 necessary for the construction of this line through Hunan and Hupeh. The funds for the line in Southern and Central China will be provided by a British loan. The Cantonese are expected to defray the expenses of a part of the line in Hunan.

NEW AUSTRALIAN RAILWAYS.—The announcement is made that the construction of the South Grafton to Coff's Harbor section of the North Coast Railway in New South Wales would commence about the first of the year, and that an additional extension will be made from Coff's Harbor to Dorrigo. To relieve the congestion of traffic on the Western Suburban line it is proposed to extend the line from Belmore to Liverpool.

YUNNAN RAILWAY.—Advices from Yunnan announce the collapse of the concessionaire company after completing the construction of 92 kilometers of line and expending 10,000,000 francs. The suspension of the work is blamed on the unsettled condition of the country which made it impossible to secure the necessary labor. The first 71 kilometers of the Laokai Yunnanfu was taken over from the construction company recently.

TAI-TSAO RAILWAY.—The construction of the projected line of railway to connect the coal mines near Yihsien with Tiehchwang in South Shantung will add great impetus to the colliery industry in the section affected. The mine owners propose making modern installations and improvements that will greatly expedite the work at the mines and reduce the cost of production to the minimum, once transportation facilities are afforded.

HANCHOW-KASHING RAILWAY.—A trial run was made on the Linping-Siashih section of the Northern end of this line about the middle of August and the line between Siashih and Kashing will be completed as soon as the bridge, now under construction, is finished. It was expected that by the middle of this month trains would be running into Kashing. The construction between Kashing and Kashan was commenced this month.

PAKHOI-NANNING RAILWAY.—The survey of a line connecting Pakhoi in Kuangtung to Nanning situated in Kuangsi has been ordered by the department of Posts and Communications and the viceroy of Canton has the matter under his charge. This is the line proposed and abandoned last year but now found necessary for the transportation of troops and military supplies in connection with the uprisings that feature those Southern provinces.

BURMO-CHINESE RAILWAY.—The Indian Railway Board is considering the construction of a railway to connect Bhamo and Talifu by way of Tengyueh, a distance of 385 miles. This would place Western China in direct communication with India and the traffic, which is now carried during the more favorable seasons by pack-trains, indicates that the project would prove a satisfactory investment. This line would cost about £5,000,000.

TIENTSIN-PUKOW CONSTRUCTION.—The German or Northern division of this line is to be divided into four sections for the purpose of expediting the construction, as follows: Tientsin to Liangwongchuang; Liangwongchuang to Sungchiatun; Shungchiatun to Tungkuangshien and Tungkuangshien to Tungpinghsien. The director general of the entire railway is the Hon. Lu Hai-huan and managing director of the British section is Taotai K. S. Low.

AMERICAN ENTERPRISE IN SIBERIA.—Professor Oseroff who occupies the chair of Political Economy in the Moscow University is quoted by the Russian Press. "The granting of concessions to the financiers of America must be made under the one condition, that all the work must be carried out with Russian labor and Russian material. I would like to see concessions given to Americans so that the American spirit of energy and work may take the lead and become a blessing to the people of Siberia."

RANGOON RAILWAY STATION.—The plans for the extension of the Rangoon railway station are complete and the work on the remodelling of the yard is underway. The increased facilities necessary for the handling of traffic at this point has been apparent for some time. The additions of the traffic from the lines in the Irrawaddy Delta and the line to Mandalay which Rangoon now handles in addition to the original Rangoon-Prome line, have caused serious congestion and inconvenience which the remodelling will eliminate. The cost will not exceed twenty lakhs of rupees.

LOCOMOTIVES FOR PEKING-KALGAN LINE.—The North British Locomotive Company, Limited, of Glasgow has shipped three heavy articulated compound engines for this railway. They are equipped with the Westinghouse automatic brake and are designed for use on heavy grades. They are described as follows:

Gauge, 4 ft. 8½ in.; diameter of high pressure cylinders, 18 in.; diameter of low-pressure cylinders, 28¾ in.; stroke of pistons, 28 in.; diameter of coupled wheels, 4 ft. 3 in.; rigid wheel base, 9 ft. 8 in.; total wheel base 29 ft. 4 in.; height of boiler centre, 10 ft.; heating surface total 2,591 square feet; grate area, 45.1 square feet; working pressure, 200 lbs. per square in.; weight in working order, 96.

SOUTH AUSTRALIAN RAILWAYS.—Tenders will be opened on October 21 for the following railway material delivered on the dock at Port Adelaide—72 best mild steel boiler plates, 16 best mild steel smokebox tube plates, 5 copper tube plates (flanged), 16 copper wrapping plates 5 best steel crank axles, 50 carriage rugs, 12 cast steel tramcar wheels, 317 engine and tender tires, 302 bars channel steel, 245 bars angle steel, 603 mild steel plates, 10 bars square root angle steel, 580 spiral springs, 15 bars best mild steel angles, 600 mild steel sheets for panel plates. Specifications may be seen and forms of tender obtained at the Supply and Tender Board Office, and the Office of the Chief Mechanical Engineer, Islington; specifications may also be seen at the Office of the Agent-General for South Australia in London.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

CANTON WATERWORKS.—The construction of the extensive system of water supply for Canton is now under way. The first sod was turned on August 16th.

CHINA'S SOUTHERN NAVAL BASE.—With the approval of Peking the Island of Nantien will be made the naval base and large docks will be constructed at an early date.

TAIHOKU WATERWORKS.—The development of a water supply system has cost the city over one million dollars during the past three years and is now nearing completion.

FATSHAN WATERWORKS.—The petition of Mr. Pan Yuen Ho for a concession to install a water supply system at Fatshan has been granted by the viceroy. He will also install an electric light plant.

PEKING WATERWORKS CONSTRUCTION.—The work on this system is now under way. The contractors have divided the construction into two sections and both are being developed simultaneously.

YOKOHAMA WATERWORKS.—The extension of the water supply at an outlay of 7,000,000 yen, the construction of which will take 10 years has been decided upon and the financial features are now being arranged.

FOOCHOW DOCKYARDS.—A new site is proposed for these docks and new buildings with the most modern equipment will be installed. The central government has authorized the dispatch of a delegation to foreign countries to investigate methods and equipment.

HOANGHO CONSERVANCY.—During the last year over Tls. 150,000 have been spent in the maintenance of the dyke repairs and in constructing new dykes, says the *Peking and Tientsin Times*. The new dykes comprise a distance of 12,000 feet in length on either side of the river between Tsiyang and Putahsien.

NEW ZEALAND PUBLIC WORKS.—The government has authorized a loan of £1,250,000 to be expended together with £1,100,000 from other sources as follows: Railways, £1,000,000; additions to open lines, £350,000; roads and bridges, £650,000; public buildings and telegraph and telephone extensions, £350,000.

CHIKUGO IRRIGATION.—The Fukuoka ken authorities are considering a scheme for the irrigation of the rice lands in Chikugo. The scheme includes the construction of a canal 35 miles in length and the utilization of the waters of the Chikugo River. This equipment will, it is believed, provide sufficient water to irrigate 33,000 acres.

BENGUET ROAD BRIDGES.—The Atlantic Gulf and Pacific Co. of Manila has secured the contract for the construction of three reinforced concrete bridges and five steel spans on the Benguet Road to replace the temporary suspension structures. The concrete arch structures will have 70, 75 and 23 meters respectively and the largest steel span will be 79 meters.

ONOHAMA RECLAMATION SCHEME.—The Mitsui Company proposes to expend the sum of 10,000,000 yen in reclamation at Onohama for the purpose of extending its warehouse accommodation in connection with the increased harbor facilities at Kobe and the prospect for increased business. Some delay has been experienced in securing permission of the Kobe authorities.

KEELUNG HARBOR WORKS.—The progress of the harbor improvement works at this Formosan port has been marked, and by the end of the year the quays in the vicinity of the railway station will accommodate vessels of medium tonnage to anchor alongside. These quays will be 1,500 feet in length and there will be an uniform depth of 30 feet alongside when complete.

SIBERIAN WATERWAYS AND IMPROVEMENTS.—A project which has for its purpose the construction of large canals for the purpose of connecting the rivers Tobol, Ob, Ishim, Irlish, and Yeniessi, has been authorized by the Russian government and a survey is now under way. This system of canals and natural waterways will approximately parallel the Trans-Siberian Railway.

WATER SUPPLY FOR RUBBER ESTATES.—The necessity of pure water for the rubber estates of Malaya is engaging the attention of the leading rubber companies. The *Singapore Free Press* announces that the Chenderiang and Sungei Yong Rubber companies have arranged to tap the Chenderiang and Tapah water mains for the purpose of supplying pure water to their estates.

YOKOHAMA BUND RECLAMATION.—The city assembly recently appropriated the sum of yen 27,650 for the purpose of reclaiming a portion of the foreshore in order to widen the road between the French Hatoba and the Grand Hotel. The reclamation of this strip will be 11 yards wide by 266 feet in length. This work is an extension of the plans of the electric railway company along the foreshore to Sugita.

HANKOW PUBLIC IMPROVEMENTS.—The construction of municipal buildings in the Russian, German, and British concessions is an indication of the general activity in the building line that characterized recent history in this city. The different concessions are well lighted with electric light and with the transfer of the old British Municipal building to the customs makes the latter more available to the commercial community.

LIAO RIVER IMPROVEMENTS.—The merchants o Newchwang are agitating the improvement of the river so that it may be kept open for the junk carrying trade. It is advanced that the facilities offered by the river for the transportation of supplies and Manchurian products cannot be equalled by any railway that may be built from Tiehling to the sea. A free and open channel from Tiehling would mean much to the development of the resources of Manchuria.

HONOLULU HARBOR WORKS.—The construction of an entrance channel to the harbor 35 feet deep and 400 feet deep and easing of a curve which menaces shipping is well advanced. The dredging of the harbor proper will provide shelter of an uniform depth of 35 feet and width of 1,200 feet at mean low water. The plans for the naval station at Pearl Harbor, eight miles west, provides for a waterway 37 feet in depth and at no point in which there shall be a curve of less than 2,000 feet radius.

MONGKOKTSUI TYPHOON SHELTER.—The legislative council of Hongkong has authorized the expenditure of $1,500,000 for the construction of a large harbor of refuge and to meet a portion of the cost the following increase of harbor dues was authorized:

(1) For all river steamers, which enter the waters of the Colony by day or by night:—

Five-sixths of a cent per ton register.

(2) All other ships which enter the waters of the Colony:—

Two cents per ton register.

Exemptions.—British and foreign ships of war.

MORO PROVINCE IMPROVEMENTS.—The sum of ₱94,050 has been authorized expended for buildings at Mindanao as follows:

District building, District of Lanao, fifteen thousand pesos; district building, Cotabato, twelve thousand pesos; custom house and bodega at Davao, three thousand five hundred pesos; pump-house at provincial building, one thousand pesos; district jail at Jolo, ten thousand pesos; garage at Zamboanga two hundred and fifty pesos; headquarters, sub-district of Basilan, five thousand pesos; Moro Exchange buildings, twelve thousand five hundred pesos; buildings at Calarian, three thousand three hundred pesos; school buildings, thirty-one thousand five hundred pesos.

For bridges and roads the sum of ₱65,100 will be expended.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

GUNBOATS FOR THE AMUR.—The shipyard at Storetinsk on the Amur has been given the contract for the construction of three vessels which will be used for patrolling purposes.

TO SUPPLY BATTLESHIPS.—Messrs. Arnhold, Karberg & Co. have secured the contract for the supply of fittings, decorations and other supplies for the battleship fleet during its visit to Amoy.

SINGAPORE MARINE REPORT.—During the year 1907, 10,647 vessels with an aggregate tonnage of 14,295,028, called at this port, a decrease of 346 vessels and 173,260 tonnage compared with the previous year.

FLOUR RATE ADVANCE.—At the conference of shipping companies at Seattle recently the advance of rates on flour shipments from Pacific coast ports to oriental ports from $2 to $3 a ton was discussed.

SHANGHAI-TAIREN SERVICE.—The service was inaugurated by the Nippon Yusen Kaisha August 10th. This service reduces the time to Harbin by railway from Dalny by two or three days rather than by Vladivostok.

SUNKEN WARSHIPS LOCATED.—The search of the Japanese navy for sunken warships off Port Arthur has resulted in the locating of the Yashima, 40 nautical miles to the South of Port Arthur, and the Sebastopol, 30 miles off Laotiehshan.

JAPANESE SHIPPING SUBSIDIES.—The manager of the Japan Shipowners Association announced recently that the ship subsidy for the year 1907 exhausted 60% of the estimated revenue from the business tax and 47% of the income tax making a total of $6,595,000 gold.

URAGA DOCK COMPANY.—Owing to the depression in shipbuilding this company has decided to reduce its expenditure and the night shift has been abandoned. The capital has also been reduced. During the year over 1200 employees have been laid of permanently.

PENANG WHARVES EQUIPMENT.—The legislative council has authorized the expenditure of $142,000 for the purpose of providing lighters, equipment and plant for the purpose of landing, storing and shipping cargo. Additional estimates will be submitted for added facilities in the near future.

JAVA-AUSTRALIAN LINE.—The Royal Steam Packe, Company has inaugurated a service which will include Batavia, calling at the following ports: Samarang, Sourabaya, Balek-Pappan, Macassar, Banda, Dobot Thursday Island, Townsville, Brisbane, and Sydney. The vessel will then return to Batavia.

FENGTIEN DEEP SEA FISHING CO.—This company has been transformed into a government institution and it is the purpose of the government to greatly expand the operations along the coast. Several steamers adapted to deep sea fishing will be put in commission along the coasts of Chinchow, Haicheng, Fuchow and Kaiping.

JAPANESE MARINE SERVICE.—According to the Journal of the Yokohama Chamber of Commerce, the total number of steamships owned in Japan at the end of May was 1,597 with a tonnage of 1,118,119. Of these 1,436 are under 5,000 tons each and 27 over that in tonnage. The number of sailing vessels were 4,291 representing a total tonnage of 359,048.

SHANGHAI-HAKODATE LINE.—It is announced that Messrs. Butterfield and Swire propose opening a new line of steamers between those two ports by transfering the Chinan, Chinchu and Anhui from the Yokohama-Shanghai line. It is not improbable that two of the vessels plying between Yokohama and Australia may carry the Shanghai-Yokohama traffic.

DAVAO PEARL FISHERIES.—The regulation of pearl fishing so that the discoverer of beds may have the first opportunity to develop them is now agitating those interested in preserving and developing the industry in Mindanao. During the last three months over 90 tons of shell have been taken out of the Davao pearling grounds. It is proposed that the laws governing the sponge fisheries of the southern group be applied relatively to the pearling industry.

BANGKOK DOCK CO.—With the completion of the new ship and launch building connected with this company's equipment, the construction of a new steel lighter for the East Asiatic Co. and another of the same size for the Bombay Burma Trading Corporation will be under way. Besides there is a new steel shallow draft launch for the Siam Packet Co. and several large passenger launches for the Petriew run of the Siam Packet Co. ordered, according to the Bangkok *Times*.

U. S. PACIFIC CARRYING CONTRACT.—Messrs. Frank Waterhouse & Co. have secured the contract with the U. S. Quartermaster's Department for the carrying of supplies to Manila from Seattle. This covers the carrying of over 50,000 tons and the prices named in the contract are $4 a ton for forage and $10 a m feet lumber. Messrs. Jebsen & Ostranger submitted lower bids but the former got the preference for the reason that most of their vessels were American bottoms and adapted to transport service in case of emergency.

LITTORAL HERRING FISHERIES.—The import of herrings from these fisheries from last season's catch which covered the period from November to May this year follows:

Place of the Import	*Quantity.*	*Value*
Tsuruga	6,092,904	79,822 rubles
Niigata	191,750	11,783 "
Hakodate	689,800	6,248 "
Nagasaki	530,300	5,983 "
Otaru	137,000	1,284 "
Moji	63,360	643 "
Kobe	18,000	180 "
Osaka	4,500	30 "
Total	8,700,614	105,976 "

MINES, MINERALS AND THE METAL TRADE

PINGHSIANG COAL MINE.—The line which the mining company proposed building from the mines to connect with the Canton-Hankow Railway.

SMELTER FOR KUEICHOW.—The mining bureau at this point is constructing a smelter to handle the silver ore from mountains of Fan Dzen.

NAIL AND WIRE FACTORY FOR TIENTSIN.—A company with a capital of Tls. 3,000,000 has been authorized to establish a large factory at Tientsin.

RISING SUN OIL CO.—This company is constructing a large refinery at Nishitosaki in Chikuzen province. It will refine Borneo oil and supply the Korean and Manchurian trade.

FUSAN COAL MINES.—Although modern machinery has not been introduced, the South Manchurian Railway has managed to reduce the cost of mining coal from yen 4.20 to yen 2.50 a ton.

MINING IN THE TOWN OF SUNGEI BESI.—Five large tin mines have been operating within the city limits for some time and two more are reported to be preparing to begin operations at an early date.

HODEN OIL COMPANY.—This company has purchased the holdings of the Namboku, Fuji, Hokuyetsu, Yamato and the Niitsu Oil companies in Japan. The whole amount paid amounted to Yen 2,085,000.

GOLD DISCOVERY IN FORMOSA.—Prospectors operating along the coast near Suinenbi report the discovery of a rich gold vein that promises great returns. Capital is being interested in its development.

MONGOLIA GOLD MINING COMPANY.—A company comprising English and Chinese capital has been formed to develop the gold mines at Hochiata, Chengshantze and Wutaitze. The concession has been approved by Peking.

KALAASZE GOLD MINES.—A company capitalized at one million taels has been organized by Chinese and Russian capital to develop the gold deposits near Urga, the capital of Mongolia. The machinery necessary will be purchased in Russia.

FORMOSAN COAL.—During the year 1907 the Formosan coal mines supplied 99,312 tons for home consumption including railways, steamers and factories in addition to which 25,000 tons were exported and tramp steamers took over 10,000 tons.

JAPANESE WIRE MANUFACTURERS AMALGAMATE.—The Furukawa Copper Industrial Company and the Yokohama Telegraph Wire Manufacturing Company have pooled their interests under a capitalization of yen 1,200,000, each taking half of the stock.

GERMAN CHINESE MINING CO.—This company has presented a petition to the Chinese government asking that a branch of the Tientsin-Pukow be constructed to the Yi Hsien mines. The matter will be taken up definitely as soon as the surveys are completed.

TIBETAN MINING BUREAU.—For the purpose of investigating the immense mineral wealth of Tibet, the Peking authorities are opening negotiations with the Dalai Llama with a view to establishing a mining bureau at Tibet with some prominent official in charge.

FORMOSAN OIL DEPOSITS.—The northern part of Formosa is known to have very valuable oil wells and already a company has expended $150,000 in developing some of these deposits with the result that over 1,400 gallons are produced daily. The company proposes constructing a large refinery at Bioritsu.

DREDGING FOR TIN AT TONGKAH.—Two large dredgers have been ordered for use in dredging the harbor as a result of the success of the initial attempts with a small dredger directed by Captain Miles. These additional dredges will be delivered in February. The novel idea of dredging the harbors of Puket, Tongkah and Junk Ceylon and secure a handsome return in tin at the same time has proven a success.

JAVA IRON DEPOSITS.—Two syndicates representing £1,500,000 have secured concessions from the Dutch government to work the magnetic iron sand deposits in the province of Bayumas, Java. These deposits abound along the South coast and are mixed generally with sea sand. The syndicates intend to utilize an English invention which has been used successfully in separating the iron from the composite mixture.

SHANSI MINING COMPANY.—The Paochin Kungsu has been organised at Taiyuan with a capital of Tls. 5,000,000 for the purpose of controlling and developing the mineral wealth of Shansi. This company has taken over the properties of the Peking Syndicate at Petingchow and has ordered modern machinery for their development. Until the installation, however, the mines will be operated by Chinese methods and labor.

PULO LAUT COAL MINING CO.—This company reports a year's successful operation. The average monthly output was 6,500 tons and 48,835 tons were shipped to Singapore, Hongkong, Siam ports, Java ports and Rangoon while bunker coal to the amount of 25,000 tons were supplied steamships at Stagen. The impetus to the port of Stagen is indicated by the fact that 145 seagoing steamers and 21 coastwise called at Stagen during the year.

F. M. S. TIN OUTPUT.—The *Malay Mail* gives the output of tin for the six months ended June 30th as follows: Perak, 37,333.09 pikuls tin, 232,193.90 pikuls tin ore; Selanger, 20,404.79 pikuls tin, 141,144.91 pikuls tin ore; Negri Sembilan 13,090.97 pikuls tin, 26,226.14 pikuls tin ore. Total 470,392.80 pikuls. The output for the corresponding period, 1907, was 446,321.98 including Pahang, the figures for which are not available for the first six months of this year.

DREDGES FOR PARACALE GOLD FIELDS.—Joseph Pearson, a New Zealand expert, writes the FAR EASTERN REVIEW that he is building a large dredge for Messrs. Manley, Lafferty and Gallop to be used on a placer claim on the Paracale river, Camarines, Philippine Islands. The dredge has a capacity for dredging to a depth of 50 feet. The buckets have a capacity of five cubic feet; the boiler 24 h. p. and the engines 20 h. p. He also stated that he will endeavor to have dredges built in Hongkong and Manila, in future.

FINANCIAL AND THE MISCELLANEOUS

KOREAN INDUSTRIAL EXPOSITION.—The Korean government is planning an exhibition on a large scale for 1910.

FORMOSA CENSUS.—The increase of population in Formosa for the year is about 80,000 native and 18,000 Japanese.

COCHIN-CHINA EXPORT.—The export of rice for the year 1907, including broken rice and rice flour, amounted to 2,206,677 tons.

FLOUR MILLS AMALGAMATE.—The Dai Nippon and the Nisshin Flour mills have arranged for the merging of their respective interests.

HANKOW TEA EXPORT.—The tea guild has issued a report to the effect that the total export of tea will amount to over Tls. 1,300,000.

SILK EXPORT.—The half-year export of silk from Yokohama is given at 21,586 bales, an increase of about 10,000 bales. This silk goes to America.

PHILIPPINE CUSTOMS RECEIPTS.—The receipts for the month of August amounted to ₱1,036,141 against ₱1,011,127 for the corresponding month, 1907.

BANK OF COMMUNICATIONS.—Owing to the surplus applications for stock in this institution, the Board has decided to increase the capital to Tls. 10,000,000.

AMERICAN EMBASSY AT PEKING.—The *Associated Press* reports that the United States government is considering raising the legation at Peking to an embassy.

FORMOSA CAMPHOR FIELDS.—Reports from Formosa indicate that with the steady advance of the Japanese lines extensive camphor fields have been made available.

YOKOHAMA SILK CONDITIONING HOUSE EXHIBITION.—This firm proposes giving an interesting exhibit of implements used in the silk growing industry in October.

TIBETAN TRADE.—The export from Tibet to India during 1907 amounted to rupees 23,90,785 and the imports rupees 14,49,701. The principal export from Tibet is wool.

JAPANESE SAVINGS BANKS.—During the month of July the sum of yen 1,714,650 shows the increase in deposits in the savings banks of the country making in all yen 101,877,719.

NIKKON GAS COMPANY.—This Japan-Korea gas company has been successfully floated and a twenty-five year exclusive concession has been secured from the Korean government.

DAVAO HEMP.—The hemp receipts for the year up to August 31st from this colony amounted to 655,424 bales, an increase of over 24,000 bales compared with the corresponding term, 1907.

CHINESE BANKING SCHOOL.—The Director General of the National Bank of China has established a school at Peking for the training of young men in banking methods. There are 80 students enrolled.

SOAP AND CANDLE FACTORY FOR TIENTSIN.—A Chinese company with a capital of Tls. 100,000 has been organized among the merchants of Tientsin for the purpose of manufacturing candles and soap for the North Chinese trade.

CATTLE RAISING IN BORNEO.—The sale of the island of Balambangan has been consummated for the purpose of raising cattle and cultivating cocoanuts. This island was once the station of the old East Indian Company, says the *Borneo Herald*.

CHINESE PAPER MILL.—Over one million taels will be invested in a paper mill to be established at Hankow of which 300,000 taels will be invested in the building alone. The factory will be situated on the Yiu River about 5 miles from Hankow.

PHILIPPINES POST OFFICE SAVINGS BANK.—The report of this institution shows ₱1,031,990 on deposit. The following investments have been made with the savings: On time deposits in banks ₱750,000; on railroad bonds ₱249,515.55 and on mortgages ₱81,625.

JAPANESE PATENTS AND REGISTRATION OF TRADE MARKS.—The total number of patents registered since the patent laws were imposed is 8,892 of which 2,551 were taken out by foreigners. The total of trade marks is 32,436 of which 5,189 were made by foreigners.

JAPANESE FINANCE.—Reports from Tokyo indicate increased confidence in Japanese securities. American orders for short term bonds paying 7% have reached in the vicinity of five millions and Japanese capitalists are withdrawing time deposits for the same purpose.

COMMERCIAL AND SAVINGS BANK OF SHANGHAI.—Taotai Shen Chang is promoting the establishing of a bank at Shanghai under the above style name with a capital of $1,200,000 and has received the endorsement of the Board of Finance. It is expected that the institution will soon be opened.

KOREAN COTTON.—The Japanese Cotton Growers Association is encouraging the cultivation of cotton in Korea with marked success. An estate of 71 hectares produced 100 bales in 1906 and experts report that if all the available land is placed under cultivation of cotton it will realize over 100,000 bales a year.

MANILA TRADE REPORT.—Messrs. Warner Barnes & Co. of Manila report depression in hemp prices owing to dull market in London and Iloilo sugar quiet. The copra and rice market continues firm and freights unchanged. First class Australian coal brings ₱10.45-10.50 exship, duty paid, with some orders booked for next year.

YOKOHAMA SPECIE BANK.—This institution has decided to open branches at Rangoon, Singapore, Montreal, Vancouver, Seattle and some point in Australia. This extension has been decided upon as a result of the recommendations of Director Bekki who has been making a tour of inspection of banking methods in Europe, India and America.

CHINESE COMMERCIAL EXHIBITIONS.—The Chinese merchants of Shanghai and the treaty ports propose establishing a six months commercial exposition at Shanghai at an estimated cost of Tls. 1,000,000. Another exhibition at Tientsin on the same lines is contemplated. It is not improbable that the authorities will rebuild the Commercial Exposition Hall recently destroyed by fire at Peking.

INTERNATIONAL RUBBER EXHIBITION.—The official opening of the exhibition in London scheduled for September 21st promises a more general participation than the most sanguine anticipation. The exhibits are from representative rubber growing areas including Ceylon, the Straits Settlements, the Federated Malay States, Java, South India, Borneo, Equatorial Africa, Mexico, Brazil, and the West Indies.

JAPANESE VEGETABLE AND FRUIT EXPORT.—The report of export in these lines to America, China, Korea, Hongkong, Siberia, Straits Settlements, India, etc. shows a value of over yen 3,000,000. The principal

item is the Japanese orange which heads the list in the value of yen 820,000, lily bulbs, yen 490,000, potatoes 396,000, onions, 260,000. These amounts are taken from the 1906 report and indicate the relative values of the different products exported each year.

IMPERIAL GOVERNMENT COTTON MILL.—The authorities at Peking have authorized the establishment of a cotton weaving and spinning plant to cost in the vicinity of Tls. 5,000,000 and Taotai Cho Hsueh-hsi has been appointed managing director. Several officials have been sent to Europe and America for the purpose of investigating the most modern methods and machinery. The site of the factory has not yet been chosen. The announcement is made that the Chinese government is desirous of reducing the importation of manufactured cotton by producing it at home thus encouraging home industry and giving employment to large numbers of Chinese mechanics and operators.

MANILA RAILWAY DEBENTURES.—Messrs. Speyer Brothers and the Hongkong and Shanghai Banking Corporation offer for sale £1,250,000 of Four per Cent. "A" Debenture bonds of the Manila Railway company, at the price of 83 per cent., payable as to £5 per cent on application and £78 on the 16th inst. These bonds are, in effect, a first charge on the old system of 208 miles of railway through the company's holding of the entire stock and bond capital of the Manila Railroad Company (an American company); while, in addition they will be similarly secured upon about 444 miles of new lines now under construction, which are expected to be completed by 1913. According to estimates given in the prospectus, it is expected that in 1913, the first year of the completed system of 652 miles, the net earnings will be £300,000 against a total fixed charge, on the maximum of £3,250,000 of "A" Debenture bonds, of £130,000. Estimates for the current year place the net receipts from the old system at £113,200, the charge on the "A" Debenture bonds being £68,000. The authorized capital of the company is £4,000,000, of which £2,000,000 is in Five per cent. Preference shares and £2,000,000 in Ordinary shares of £10 each, together with £3,250,000 of Four per cent. Debenture bonds and £3,250,000 of Four per cent. "B" Debentures.

*LONDON, ENGLAND, METAL MARKET

July 30, 1908.

The following are to-night's (Sept. 4) prices ¶ of metals:—

COPPER	£	s.	d.		£	s.	d
*Tough cake and Ingot.	63	10	0	..	64	0	0
*Best Selected	64	0	0	..	64	10	0
*Electrolytic	65	10	0	..	66	10	0
*Sheets and sheathing	75	0	0	..	—		
*Flat bottoms	78	0	0	..	—		
STANDARD †Cash	60	7	6	..	60	10	0
STANDARD †Three Months	61	2	6	..	61	5	0
*Copper tubes, seamless per lb.	0	0	9½	..	—		
*Lake	65	10	0	..	66	10	0

* Less 3½ per cent. † Net.

ALLOYS.	£	s.	d.		
BRASS: Wire	0	0	6¾	..	—
,, Tubes (solid drawn)	0	0	7½	..	—
,, Sheets	0	0	7	..	—

TIN.	£	s.	d.		£	s.	d.
English ingots, f. o. b.	131	0	0	..	132	0	0
,, bars	132	0	0	..	133	0	0
,, refined	133	0	0	..	134	0	0
Straits... Cash	131	10	0	..	131	12	6
Straits... Three months	132	10	0	..	132	15	0
Australian spot	131	10	0	..	132	0	0
Banka (in Holland) Cash	135	16	3	..	—		
Banka (in Holland) Three months	135	7	6	..	—		

LEAD.	£	s.	d.		£	s.	d.
Spanish or soft foreign	13	1	3	..	13	3	9
English pig, common	13	5	0	..	13	7	6
,, L. B.	13	17	6	..	—		
,, sheet and bar lead	14	7	6	..	—		
,, pipe	14	17	6	..	—		
,, red	16	10	0	..	—		
,, white	18	0	0	..	—		
,, patent shot	16	7	6	..	—		

SPELTER.	£	s.	d.		£	s.	d.
Silesian ordinary brands	19	5	0	..	19	7	6
,, special brands	19	15	0	..	20	0	0
English Swansea	20	0	0	..	20	10	0
Sheet zinc	23	0	0	..	—		

ANTIMONY.	£	s.	d.		£	s.	d.
Antimony Regulus	30	0	0	..	32	0	0
,, Crude	13	10	0	..	14	0	0
,, Ore (basis 50%)	8	10	0	..	9	10	0

QUICKSILVER.	£	s.	d.		
Flasks, 75 lbs. warrants	8	2	6	.	—

MANGANESE. Ore, c.i.f., U. K. ports.	Per unit.*				Per unit.*
1st quality, 50 per cent. and upwards	0	0	9½	..	—
2nd quality, 47 per cent. to 50 per cent	0	0	8½	..	—
3rd quality, 40 per cent to 47 per cent	0	0	7½	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per lb.				Per lb.		
98-99¾ per cent	0	0	9	..	0	1	0

NICKEL.	Per ton.				Per ton.		
98-99 per cent. guaranteed	170	0	0	..	175	0	0

PLATINUM.

Per oz. Troy, 93s. to 85s; nominal and subject to negotiation.

* *Mining Journal.*

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2 00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4 25-4.625
Sulphuric, 66° bulk	ton	18 00
ALUMINUM, Sulphate Com'l	lb	1.10-1 75
ANTIMONY, needle	"	.05-.06
ARSENIC, white	"	05-.055
red	"	.07½-.07¾
ASPHALTUM.—		
Trinidad	ton	28.00-30.00
California	"	21.00-27.00
BLEACHING POWDER, 35%	100 lbs	1.25-1.40
BLUE VITRIOL	lb	5.00
BONE ASH	"	.02¾-.04
BORAX	"	.01½-.05½
*CAPS detonating	M	-7.50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" " "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.75
*Alsen		3.00
CLAY, CHINA.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
*COALS.—		
Batan, at Mines	ton	3 00
Australian	"	5 50
COPPER	lb	.12½-.12¾
*DYNAMITE 40%	"	.20
FELDSPAR ground best	sh. ton	10 50-15.00
FIRE BRICK, American	M	30.00-40 00
Imported	"	30 00-45.00
FIRE CLAY, St. Louis Mill	ton	2 50
*FUSE—Blasting	1,000 ft	7 50
GRAPHITE—Ceylon, lump	lb	.04-.10
Large lump	lb	.07-.10
GYPSUM—Fertilizer	sh ton	7 00
Powdered	sh. ton	12 00-20.00
LEAD	lb	-.037
MAGNESITE-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
MANGANESE, Ore, 80-85%	sh. ton	20.00-50.00
MERCURY, export flask	75 lbs	36.00-39.0
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.06½-.06¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.44½-.4
White lead, Am. dry	lb	.05¾-.0
Am. in oil	"	.06½-.06
Zinc, white, Am. extra dry	"	.05¾-.05
PHOSPHATES, Acid	per unit	.65-.7
Florida hard rock	lg. ton	10 25-10 5
Land pebble 68%	"	5.25-5 5
POTASSIUM Cyanide (98-99%)	lb	.18-.19
PLATINUM	oz	28.00
PLATINUM, Scrap	oz	17.00
SPELTER	lb	.045-.046
NICKEL Small lots	lb	.50-.60
*POWDER, black blasting A	lb	.15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½-.13
Imported, arsenical	" "	.12-.12½
SALTPETER crude	100 lbs	4.50-5 00
SILICA, Lump quartz	lg. ton	5 00-6 00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 7
SILVER	oz	.55½-.55
SODIUM cyanide (100% KCN)	lb	.1
*STEEL, octagon drill	lb	.
SULPHUR, Louisiana prime	lg. ton	22.
Roll	100 lbs	1 85-2.
Flowers sublimed	"	2.20-2.
TALC—Domestic	sh. ton	15.00-25.
Italian, best	"	35 00-40.
TIN	lb	.28¾-.3
ZINC, Sheet	100 lb	7.
Dust	lb	.05¾-.06

*Manila quotation.

HEMP STATISTICS, 1st OCTOBER, 1908.

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st Aug. 1908		480,986 *Bales*
Arrivals of hemp at Cebu up 31st Aug. 1908		174,438 *Bales*
		655,424 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales*
TOTAL		784,783 *Bales.*
Export to all ports to date 31-8-08	620,949 *Bales.*	
Local consumption estimated at	3,200 "	624,149 *Bales.*
Total stocks at Manila and Cebu on 1st September, 1908		160,634 *Bales.*

EXPORT OF HEMP, SEPTEMBER 1908.

Date		*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East & California*	*Continent*	*Australia*	*Other Pts.*	*Total Bales*
		Fwd:—	192,562	80,858	223,901	50,614	39,239	11,824	21,951	620,949
Sept.	1	C. Lopez y Lopez.	1455	600			64			2119
"	3	Peleus.........Cebu	3432	2050			775			6257
"	6	Changsha		1,600				300		300
"	"	Rubi							302	302
"	11	Yuensang	2988	500					300	3788
"	7	Yawatu Maru						1,100		1,100
"	4	Errol			13,717					13,717
"	14	Cranley	2,000							2,000
"	15	Bauca	2426	1500			3050			6976
"	"	Inverio				11,939				11,939
"	14	Prinz Waldemar							166	166
"	"	Empire							50	50
"	15	Tean		850			250			1,100
"	18	Loongsang					22		25	47
"	"	Tringgan.....Cebu					150			150
"	"	Kaifong.........do							367	367
"	16	Zafiro					410		250	660
"	24	Jeseric			17 527					17,527
"	22	Taming					540			540
"	25	Yuensang	350	2120			300		316	3086
"	26	Kumano Maru							170	170
"	"	Rubi		1750			900		800	3450
"	27	Banca.........Cebu	1,000	925			1150			3075
"	29	I. de Panay		800			16			816
"	25	Sungkiang...Cebu	1450	484			600			2534
"	29	Tean					200			200
"	30	Jeseric.........Cebu			11,030					11,030
			207,663	92,437	266,175	62,553	47,666	13,224	24,697	714,415

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for November, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14,000,000 i $250,000	$2,005,774	30-6-08	Interim of £2 for first half year—@ ex 1/9⅞=$21.942.	5½	$845 buyers £82-15/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$50
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7¾	$190 sales & buy.
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 1[illegible]0,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7/6 making 15/- for 1907	6	Tls. 90 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5¾	$800 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-07	$12 and bonus $3 for 1906	9	$197½
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 z $346,097	$372,432	31-12-07	$6 and bonus $2 for 1906	8	$102 buyers
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	f $13,802 $1,323,941	$428,047	31-12-07	$27 for 1906	8	$330
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	$7,000	$1,035	31-12-07	$1 for 1906	....	$14
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7½	$33 buyers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $587,500 f $ 81,766 $ 17,655	$17,755	30-6-08	$1½ for first half year ending 30-6-08	7¾	$29 buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	e £10,000 i £240,000	£137	31-12-07	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	5¾	$37 $17
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Interim of Tls. 1¾ for % 1908	7½ 7	Tls. 44 buyers Tls. 52 sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Final of 1/- making in all 3/- for 1907 and Interim of 1/- for % 1908 (Coupon No. 10)	6	47/6 buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 / 50 cts. for year ended 30-4-08	4 3½	$24 $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 140,000 d Tls. 609,255 e Tls. 100,000 i Tls. 116,000 g Tls. 17,142	Tls. 6,869	31-12-07	Final of Tls. 2½ making Tls. 5 for 1907	11	Tls. 45 sellers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $32,538 e $450,000	Dr. $279,371	31-12-07	$8 for year ending 31-12-06	....	$112½ sales
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	r $56,848	Dr. $135,132	31-12-07	$3 for 1897	----	$20 sellers
Perak Sugar Cultivation Co., Ld.	----	Tls. 350,000	7,000	Tls. 50	Tls. 50	none Tls. 100,000	Tls. 9,173	31-8-07	Tls. 4. (8%) for year ending 31-8-06	....	Tls. 90 buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1/6 (Coupon No. 11) for year ending 29-2-08	7¾	Tls. 15½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/-—48 cents	----	$7¾
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	....	$13
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806	$3 556	31-12-07	Final of $1½ making $3½ for 1907	7¾	$45
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $40,000 i $76,199	$384,847	30-6-08	Interim of $4 for % 1908	8½	$92 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	v $200,000 Tls. 1,000,000	Tls. 33,742	30-4-08	Final of Tls. 2½ making in all Tls. 5 for year end. 30-4-08	6½	Tls. 72 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Interim of Tls. 4 for % 1908	5½	Tls. 143 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 100
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	....	$16
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$9,178	31-12-06	$1.80 for 1906	----	$12 buyers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $22,000	$14,639	31-12-08	Interim of $3 for % 1908	8	$80 buyers
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$36,915	31-12-07	Interim of $3½ for % 1908	7½	$93 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7½	$9½

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	When Established	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE.	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1¾ for 1907	6½	$27
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 170,000	Tls. 107,547	31-12-07	Interim of Tls. 3 for % 1908	7	Tls. 116 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Interim of $2 for % 1907	9	$46
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	3¾	Tls. 67½ buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	4¾	$10½
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%)	....	Tls. 60 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 75 sellers
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 240 sales
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,500	£648	31-12-07	1s. 10½d. for 1907=$1.037	13½	$7½ sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	12	$10 buyers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$5¼
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3,593	31-12-07	80 cents for 1907	8½	$9½ buyers
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $100,000 $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	5½	$24
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Interim of 40 cents for % 1908	10	$10 sales
H. Price & Co. Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12 buyers
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10	$20 sales
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	6¾	$17½ sales
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,578	31-12-07	Interim of $4 for % 1908	8¾	$235
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	none	$8,191	31-12-07	Interim of $1 for % 1908	8	$25
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for third quarter	4¾	Tls. 700 buyers
Peak Tramways Co., Ld. Do. (New)	1907	$750.000	25,000 50,000	$10 $10	$10 $1	$5.000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 4	$14 $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	6½	Tls. 119 sales
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	12	Tls. 116 buyers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 400
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $90,237	31-8-07	None	....	$25 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-07	40 cents for year ending 30-5-08	8	$5
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 s Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	4¾	$10½
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders' shares for year ending 31-5-07	6½	$13
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	e $300,000 $25,000	$6,438	31-12-07	Final of 3%=30 cents making in all 60 cents for year ending 31-12-07	6	$10
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg. 31-7 07.	....	$150
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$3,95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital-Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
19 12.000 issued only.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Final of Gold cents 50 making gold 10 for year ended 30th June 1907	Sept. 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28 2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	May 30, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	—	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104	,, 105,000	" 60 000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104	,, 250 000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104	,, 320,000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 103	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 103	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 103	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 103	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 103	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 103	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 103	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 103	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 103	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures		,, 102½	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 100	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, January, 1909)

Date of Formation	Capital	Capital paid up	No. o Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	6.75	7.10	7.10
1907	$300,000	225,000	22,500*y*	10	10	....		Bruang Ltd.	7.50	8.00	8.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	10.00	11.50	10.00
1903	£400,000	350,000	350,000*a*	1	1	....		Duff Development Co., Ltd.	3.50	3.55	3.55
1907	$400,000	375,000	37,500*b*	10	10	....		Kanaboi, Ltd.	....	1.50	1.50
1901	£60,000	60,000	60,000	1	1	....	1/6 interim for 1908	Kinta Tin Mines, Ltd.	10.00	10.25	10.25
1906	£100,000	100,000	100,000	1	1	....		Kledang Tin Mining Co., Ltd.	....	5.00	5.00
1905	$150,000	99,000	9,900*c*	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	5.00	5.00
1906	£120,000	120,000	120,000	1	1	....		Lahat Mines Ltd.	11.50	11.75	11.75
1906	£30,000	30,000	30,000	1	1	....		Malaya and Siam Corporation, Ltd.	....	7/6	7/6
1906	$450,000	450,000	45,000	10	10	....		Malacca Tin Dredging Co., Ltd.	....	3.00	3.00
1906	£250,000	179,500	500,000*h*	5/-	5/-	....		Pahang Consolidated Co., Ltd.	....	30/-	30/
			54,500	1	1	....		" " " 7% *Pref.*	....	....	nominal.
1907	£100,000	80,000	80,000*j**	1	1	....		Pengkalen, Ltd.	6.50	6.75	6.75
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	4.50	5.00	5.00
1907	$450,000	300,000	30,000*h**	10	10	....		Rahman Hydraulic Tin Mines, Ltd.	....	8.25	8.25
1905	£27,000	21,750	21,750*e*	1	1	....	1/- interim during 1907	Rambutan, Ltd.	....	7.75	7.75
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd. *Fully pd.*	6.40	6.50	6.50
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	6.00	6.10	6.00
1905	£40,000	40,000	40,000	1	1	....		Redhills Tin Mining Co., Ltd.	....	....	nominal.
1898	Gs2.500,000	2,500,000	25,000	100	100	....	71% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd.	970.00	1000.00	97.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd.	0.90	1.00	0.90
1907	$500,000	500,000	50,000	10	10	....		Salak South, Ltd.	....	7.25	7.25
1907	£80,000	80,000	80,000	1	1	....		Sempam Tin Mines, Ltd.	....	3.00	3.00
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd.	....	5.75	5.75
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	4.25	4.75	4.75
1907	£90,000	70,000	70,000*z*	1	1	....		Tekka, Limited	9.50	10.00	10.00
1902	£160,000	149,185	149,185*f*	1	1	....	5/- during 1907	Tronoh Mines, Ltd.	8.75	9.00	9.00
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1	....	10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.0.0	4.7.6	4. 7. 6
			103,500	1	17/6	....		" " " *Contributory*	3.17 6	4.2.6	4. 2. 6
1905	$200,000	115,500	10,500*g**	10	10	7,400	12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	22.00	22.50	22.00
			2,100*h*	10	7.50	....		" " " *Contributory*	16.00	....	16.00
1904	£30,000	22,750	22,750*i*	1	1	....		Batu Caves Rub. Co., Ltd.	3.0.0	3.10.0	3. 10. 0.
1903	£70,000	66,700	66,700*j*	1	1	....	12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	5.0.0	5.2.6	5. 2. 6.
1906	$150,000	125,000	12,500*k*	10	10	....		Castlewood Rubber Co., Ltd.	....	6.00	6.00
1904	£16,000	16,000	10,000	1	1	....	17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	....	5.15.0	5. 15. 0.
			6,000	1	1	....	20% interim for 1908	" " " " 5% *Pref.*	....	6.0.0	6. 0. 0.
1905	£75,000	55,000	55,000*l*	1	1	....	5% interim for 1908	Consolidated Malay Rub. Estates, Ltd.	2.15.0	3.0.0	3. 0. 0
1906	£310,000	259,530	181,454*m*	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.2.6	2.4.6	2. 4. 6.
			123,546	1	12/6	....		" " " " *Contributory*	1.5.0	1.7.6	1. 5. 0
1905	£65,000	53,750	50,000	1	1	....		Kapar Para Rubber Estates, Co., Ltd.	....	2.7.6	2.7.6.
			15,000	1	5/	....		" " " " " "	....	1.5.0	1.5.0.
1906	£180,000	180,000	180,000	1	1	....	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.4.0	1.5.0	1. 5. 0.
1907	£320,000	201,500	184,000*d**	1	1	....		Lanadron Rubber Estates, Ltd.	1.11.6	1.14.0	1. 14. 0
			70,000	1	5/-	....		" " " *Contributory*	12/9	13/-	13/-
1906	Gs 175,000	175,000	540	250	250	....		Langen Rub. and Cocoanut Co., Ltd.	....	—	250.
			160	250	250	....		" " " " " *Deferred*	....	....	250.
1906	$250,000	230,950	23,095*n*	10	10	....		Ledbury Rubber Co., Ltd.	10.00	10.50	10.50
1895	£100,000	76,100	660,244*e**	2/-	2/-	....	20% interim for 1908	Linggi Plantations Ltd., *Ordinary*	11/9	12/-	12/-
			10,000	1	1	....		" " " 7% *Pref.*	....	....	1. 0. 0.
1906	£300,000	300,000	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	1.3.6	1.4.6	1. 4. 6.
			185,000	1	1	....		" " *Ordinary*	15/-	15/6	15/6
1903	£30,000	22,500	22,500*o*	1	1	....	12½% interim for 1908	Pataling Rubber Estates Synd. Ltd.	5.15.0	6.5.0	6. 5. 0
1906	$250,000	225,000	22,500*b**	10	10	....		Ragalla Rubber Co., Ltd.	....	9.00	9.00
1904	£20,000	10,035	2,588*a**	1	1	....		Sagga Rubber Company Limited	2.0.0	2.10.0	2.10.0
			12,412	1	12/-	....		" " " "	....	....	....
1904	$100,000	99,000	990*k**	100	100	....	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	275.00	285.00	275.00
1898	£30,000	30,000	300,000	2/-	2/-	....	25% interim for 1908	Selangor Rubber Co., Ltd.	16/3	16/9	16/9
1905	$500,000	500,000	5,000	100	100	....		Singapore Rubber Co. Ltd.	105.00	110.00	110.00
1903	$250,000	250,000	2,500	100	100	....		Singapore & Johore Rub. Co., Ltd.	110.00	115.00	115.00
1905	$100,000	100,000	10,000	10	10	....	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	....	12.00	12.00
1906	£110,000	100,000	100,000*l**	1	1	....		Sungei Kapar Rubber Co., Ltd.	2.5.6	2.7.6	2. 5. 6.
1904	£50,000	41,920	41,920*p*	1	1	....		Sungei Way (Selangor) Rub. Co., Ltd.	1.17.0	1.18.0	1. 18. 0
1904	£60,000	50,600	506,000*q*	2/-	2/-	....	52% interim for 1908	Vallambrosa Rubber Co., Ltd.	12/-	14/-	14/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688*c**	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.00	6.75	6.00
			27,083*d**	10	10	....			....	....	....
1907	$1,500,000	1,099,672	118,406	10	7	....	5% interim for 1908	Eastern Smelting Co., Ltd.	6.60	6.85	6.85
1898	$225,000	225,000	4,500	50	50,	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd.	142.50	145.00	145.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000*t* 14,000,000*u* 250,000*v*	£2-0-0 per share at exchange 1/9 7/8 for half year ending 30-6-08.	Hongkong & Shanghai Bank'g Corpt'n.	....	—	82 0. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd.	....	110.00	110.00
			6,000	100	....	....	7% for year ending 31-10-07	" " 7% *Pref.*	....	102.50	102.50
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref.*	17.00	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-08	Maynard & Co., Ltd.	57.50	18.00	18.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	....	60.00	57.50
			2,750	100	100	....	7% for year ending 31/12/07	" " " " 7% *Pref.*	8.50	100.00	100.00
1903	$600,000	240,000	24,000*r*	10	10	....	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	....	9.00	9.00
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	3/3	45.00	45.00
1903	£400,000	400,000	400,000	1	1	....		Singapore Electric Tramways, Co., Ltd.	....	3/6	3/6-
1904	$160,000	112,000	1,120*f**	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	....	40.00	40.00
1884	$200,000	200,000	2,000	100	100	.35,000	10% during 1907	Straits Ice Co., Ltd.	175.00	....	130.00
1890	$500,000	495,600	4,956*i**	100	100	400,000 458,925*w*	5% interim for 1908	Straits Steam Ship Co., Ltd.	....	185.00	185.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	48.00	48.50	48.50
								DEBENTURES			
								Howarth Erskine, Ltd. 6% .... $ 600,000	....	1%	1% prem.
								Riley, Hargreaves & Co., Ltd. 6% .. 225,000	....	1%	1% prem.
								Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
								Singapore Municipal 6% 400,000	....	....	20% prem. nom.
								" " 5% 1,878,000	6%	....	6% prem.
								" " 4½% 1,600,000	2%	5%	2% prem.
								" " 4% 602,900	....	....	nominal.
								Straits Engineering Syndicate, Ltd. 6% 45,000	....	par.	par.
								Tanjong Pagar Dock Board 5% .. 1,050,000	par.	....	par.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
g 100,000 " *Ord.*
h 45,500 " *Pref.*
i 7,250 "
j 3,300 "
k 2,500 "
l 20,000 "
m 5,000 to be issued to employees

n 1,905 unissued.
o 7,500 "
p 8,080 "
q 94,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "

*a** 5,000 unissued.
*b** 2,500 "
*c** 916 "
*d** 66,000 "
*e** 239,756 "
*f** 480 "
*g** 7,400 "
*h** 15,000 "
*i** 44 "
j 20,000 "
k 10 "
l 10,000 "
m 4511 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, DECEMBER, 1908.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-08	4%	for ½ year	100 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Buyers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	75 Buyers.
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	90 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 99.30
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 97.40
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 96.30
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 86.80
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 86.80
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 87.80
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 87.80
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 94.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 96.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 93.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 95.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 94.50
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 120.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	7%	June and Dec.	,, 64.10
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 42.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 72.40
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 27.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 110.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	16%	July and Jan.	,, 92.00
Fuji Gassed-yarn Company, Limited	50	50	18%	July and Jan.	,, 83.30
Tokyo Cotton Spinning Company, Limited	50	50	8%	July and Jan.	,, 35.80
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 59.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 9.50
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 62.30
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 34.10
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 83.00
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 59.50
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 54.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 10.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 82.80
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 102.50
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 78.80
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 91.70
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 33.10
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 16.10
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 131.65
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 103.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 10.00
Tokyo Stock Exchange Company	50	50	10%	June and Dec.	,, 149.50
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 124.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 91.50

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 405	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1909
Paknam Railway Co., Ltd.	,, —	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1908
Siam Tramway Co., Ltd.	,, —	,, —	,, 160	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 114	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, —	,, 175	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	31, 1908 hard
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60 000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, –	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,000	,, 1,150	1906	,, 3,000,000	3.000	,, 1,000	,, 3,000.000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co.	,, —	,, —	,, 54	1906	£ 40,000	4,000	£ 10	£ 4, per Share	—	None	—
Lang Liquidated Co.	,, —	—	—	—	—	—	—	—	—	—	—

THE FAR EASTERN REVIEW

COMMERCE ⊛ ENGINEERING ⊛ FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, NOVEMBER, 1908 No. 6.

The Hon. WILLIAM HOWARD TAFT,

President Elect of the United States of America. From Photograh Taken on Board The S. S. Minnesota while En Route to the Philippines

THE FAR EASTERN REVIEW

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THE FAKUMEN RAILWAY DISPUTE

(FROM OUR OWN CORRESPONDENT.)

Peking, January 6th, 1909.

Probably the one great issue of importance pending settlement between China and Japan is the principle involved in the Fakumen Railway dispute. This subject has received so much attention from the press that many conflicting ideas are held as to the issue at stake. An accurate presentation of the facts is vital to a thorough understanding of the situation, and may appropriately preface our comment.

Fakumen is a market town of 40,000 inhabitants on the border of Mongolia, situated 50 miles northeast of Hsinmufu, and 35 miles from the nearest point on the South Manchuria Railway. The Liao River is a natural traffic boundary flowing between the town and the Japanese Railway, which is navigable for junk traffic from Newchwang to a point 50 miles beyond Fakumen. Hsinmunfu is the Northern terminus of the Imperial Railways of North China, and is connected with Mukden by a line of 40 miles, built by the Japanese during the war, and acquired by China on April 15th, 1907, and who have since broadened the gauge and standardized it.

The success of the railways in other parts of the Empire, especially the Imperial Railways of North China, led the Chinese Government to consider the extension of the latter road northwards from Hsinmunfu to Fakumen, and thence eventually opening up Eastern Mongolia and terminating at Tsitsihar, the capital of Heilungkiang. A proposed road northwards, through Merguen to Aigun on the Amur, would complete a through trunk line to her frontiers, under Chinese control. A well-known British engineer surveyed the proposed road to Fakumen, and submitted his estimate.

During the latter part of 1907, the Viceroy of Manchuria, Hsu Shih Chung, and Governor Tang Shao Yi entered into two agreements for the construction of the road on the part of the Provincial Government, with Lord French of Paulings, Ld., of London, and J. O. P. Bland, representing the British and Chinese Corporation. Lord French, acting for Paulings, submitted a bid for the construction and equipment of the line, which was accepted, while J. O. P. Bland for the British and Chinese Corporation negotiated the loan for financing the work.

The road was to form part of the Imperial Railways of North China, under its administration and operation, and the contract stipulated that the work was to commence in three months and be completed within two years. The loan agreement and construction contract were the most economical and favorable to China ever entered into with foreigners.

The Japanese learned of the progress of these negotiations, and, before their conclusion, entered an emphatic protest, forbidding the Chinese Government from extending the Imperial Railways northwards from Hsinmunfu.

In December, 1905, an agreement was signed by China and Japan in Peking. In one of the secret clauses of this document, China binds herself not to construct, prior to the recovery by China of the South Manchuria Railway, any line in the neighborhood of, and parallel to, that railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway.

Basing her action on the above agreement, Japan has up to the present firmly held to the position that the extension would seriously compete with the South Manchuria Road, and refused to withdraw her protest.

The above are the brief facts of the celebrated issue.

The arguments of both sides are illuminating and interesting. The representations and resolutions of the Newchwang Chamber of Commerce present the view point of the foreign interests allied with China as opposed to Japan.

Representations made and resolutions adopted by the Newchwang Chamber of Commerce.

1.—This line of the proposed Fakumen Railway, at its nearest point of convergence, is 35 miles distant from the South Manchuria Railway, and separated therefrom by the River Liao.

2.—The trade of Fakumen has always found its outlet through Hsinmintun, and thence, by way of the Imperial Railways of North China, to the seaboard at Newchwang, Chinwangtao, etc. It has never gone Eastward towards the districts operated by the South Manchuria Railway, and therefore there are no grounds for Japan's contention that the proposed line, which will cater only for the trade of these regions, must be competitive with, and detrimental to, the interests of the Japanese line.

3.—The proposed line has for its sole objective the development of that vast region of fertile country, holding boundless commercial potentialities, stretching West and North West of the river Liao, the reclamation and colonization of which has now for several years, and already with marked success, been fostered in every way by the paternal Government, and in this most beneficial scheme of development, the proposed railway is an absolutely essential and vital factor, as these regions being poor in natural facilities such as navigable water-ways, by no other means, excepting only the construction of branch lines westward from the South Manchuria Railway system, can this development be assisted and promoted. Such branch lines if constructed could not be as efficient and economical agents of this development as the direct line proposed, and would necessarily do incalculable injury to the prospects and trade of the port of Newchwang, which is the natural outlet and distributing base for the country in question, by directing from it to Dalny its legitimate trade.

4.—Assuming that Japan, as is alleged, obtained from China on a subsidiary treaty the undertaking

> "not to construct, prior to the recovery "by them (China) of the said (South "Manchuria) railway any line in the "neighborhood of, and parallel to, that "railway, or any branch line which might "be detrimental to the interests of the "South Manchuria Railway, etc.,"

the Committee of this Chamber submits:—

a.—That the country to be operated by the proposed line cannot be considered to be "in the neighborhood" of the South Manchuria Railway.

b.—That, as already demonstrated, it neither will, nor can be competitive with, or in any way detrimental to, the interests of the South Manchuria Railway.

c.—That in no country in the world, of similar population and topography, could, or would, the vested trade interests or sphere of an existing railway system be held to include so extensive an area, as to preclude the construction of other lines, even though competitive (if in the commercial sense that were possible), outside of a 35 mile limit.

d.—That Japan, having in Article 4 of Portsmouth Treaty pledged herself

> "not to obstruct any general measures, "common to all countries, which China "may take for the development of com-"merce and industry in Manchuria, etc.,"

her notice in exacting or receiving from China an undertaking such as is alleged, which is diametrically opposed in principle and practice to the pledge she has herself given to the World Powers, must be considered to have been *ultra vires*, and therefore the said undertaking by China to be null and void, and of no effect.

5.—If, however, we assume further the validity of the said undertaking by China, it still remains to be urged that such undertaking manifestly could not have application or reference to this territory westerly from the river Liao which, at the time of the recent Russo-Japanese war, was by China specifically proclaimed, and by the late belligerent Powers officially recognized, to be neutral territory, outside the area of hostilities, and therefore outside also of the political sphere of treaty negotiation or engagement wherein China's sovereign rights remained unquestioned and unimpaired. Obviously her intention in such undertaking could only have had reference to action within the area which furnished the

cause of the late war, and became the territory which formed the subject of treaty, and therefore such undertaking cannot constitute any bar or obstacle to the construction of the proposed Hsinmintun-Fakumen Railway.

On all these grounds, in the opinion of the Members of this Chamber, the attitude of Japan in relation to the proposed railway is as indefensible as it is directly opposed to the principle of "equal opportunity to all" and even a menace to "the integrity of China," and therefore the following Resolution has been unanimously adopted:—

RESOLUTION.

"The Newchwang General Chamber of Commerce being convinced that the extension of the Imperial Railways of North China from Hsinmintun to Fakumen and beyond is vitally important to the development and prosperity of Manchurian trade, strongly protests against the step now being taken by the Government of Japan to enforce the abandonment of this extension, Japan having specifically undertaken in the Treaty of Portsmouth, "Not to obstruct any general measure common to all countries which China may take for the development of commerce and industry in Manchuria."

The Japanese Government felt called on to answer this through the press, and defend her position as the following excerpts indicate:

"The Japanese Government, upon learning in August, 1907, that the negotiations were in progress, warned the Chinese Government it would be violating the self-denying engagement contained in the Protocol annexed to the Treaty of Peking of December, 1905.

"That warning was repeated in October and again in November but was unheeded. When in January of last year, the Japanese Government first learned of the conclusion of the contract, it only remained for them to lodge with the Government of China a formal protest against the execution of the work.

"The British Government to which a copy of the self-denying stipulation above quoted had been communicated early in 1906, did not question the validity of Japan's objections, but the Newchwang Chamber of Commerce on the 13th March last adopted the resolution referred to above.

"The Chairman of the Chamber in his letter, dated March 16, 1908, admitted that the construction of branch lines westward from the South Manchuria Railway system, would assist and promote development, but that such branch lines, by diverting the trade to Dairen, would necessarily injure the prospects and trade of Newchwang. Finally, in the commercial interest of 'Newchwang in particular' and of 'Manchuria generally,' he asked that a copy of his letter might be transmitted by the Consular Body to the Diplomatic Corps in Peking and he stated that 'the Committee of the Chamber regard the question of such vital and far reaching importance, that it intends by every means available to give publicity to the views expressed, and to that end purpose communicating the substance of these representations to the various Chambers of Commerce and kindred associations, and to the leading press of China, Europe, and America.'

"The Consular Body did not, for obvious reasons, transmit the letter to the Diplomatic Corps as requested, but the Committee of the Newchwang Chamber of Commerce evidently carried out its threat of appealing directly to the public against the action of Japan, since the Shanghai Chamber of Commerce has taken up the issue in the interest of Newchwang.

"The representations of the Newchwang Chamber are characterized by extravagant assertions and illogical conclusions that call for examination.

"It is inaccurate to say that the Liao-ho from Hsinmintun to Fakumen forms a natural traffic boundary or that the trade of Fakumen has never sought an outlet by means of the South Manchuria Railway. In those regions, the river is easily passable and, as a matter of fact, the existing line actually serves and has always served in the matter of transportation, the country to the west equally with that to the east of the river. Produce in large quantities is conveyed from the Fakumen regions to Tiehling in Chinese carts, and thence is carried southward by the existing railway system. Especially is this true of the winter when the rivers are frozen over and the whole land becomes one broad, smooth highway

"The site of the projected railway is in that portion of the valley of the Liao which is now served by the Japanese line and it may be assumed, without fear of contradiction, that the proposed line, if constructed, would draw away from the existing system some portion of its traffic. Sir A. Hosie, the British Commercial Attaché at Peking, in writing recently on the subject of the commercial situation in Manchuria, said:

" 'It is true that the Imperial railway of North China are competing successfully with the Japanese line from Newchwang to Mukden.'

"If this be true under present conditions, it can not be doubted that with an extension of the Chinese line, there would be, at least, a corresponding extension of competition.

"Russia, at the time when she owned the South Manchurian Railway, clearly foresaw the danger from possible competition, and to safeguard her interests in that respect she inserted in the Convention with China of April 8th, 1902, a stipulation providing that in case, in future, an extension of the Shanhaikwan-Yinkow-Hsinminfun line or the construction of branch lines in the southern part of Manchuria, was to be undertaken, the matter should be previously arranged by an understanding between the Russian and Chinese Governments.

"This measure of reasonable precaution did not provoke any hostile criticism. The silence on the part of British subjects may, however, be explained by the fact that they were at the time practically excluded from railway exploitation in regions north of the Great Wall by the Anglo-Russian understanding of April 28, 1899.

"Japan, by Article VI of the Treaty of Portsmouth and Article I of the Treaty of Peking of 1905, was subrogated to all the rights, privileges and properties of Russia in the South Manchurian Railway. But desiring to have her rights placed beyond question, she obtained from China the engagement to which the Newchwang Chamber of Commerce now so seriously objects.

"If the engagement secured by Russia from Great Britain in 1899 and from China in 1892, were not unreasonable it is difficult to understand why Japan's engagement with China of 1905 should be condemned.

"Equally exaggerated and therefore equally demanding examination are the statements contained in the letter on the subject of the scope and value of the engagement (already quoted) contained in the Protocol annexed to the Peking Treaty of 1905.

"Answering these several statements in the order in which they were made it may be said:

"Firstly.—The omission from paragraph (a), above quoted, of the words 'and parallel to' which were conjunctively used with the phrase 'in the neighborhood of' in China's engagement of 1905, may be taken as an admission on the part of the Committee of the Newchwang Chamber that the projected railway would parallel the existing line. The question whether it could be regarded in the same neighborhood depends upon many considerations of more importance than mere distance.

"Thus a railway, entering a valley, undivided by any impassable streams and already occupied and actually served in all its parts by another line, would, if running parallel with and at a distance of 30 or 40 miles from the original line and bidding for a share of its traffic, be clearly regarded as in the neighborhood of and detrimental to the established line. On the other hand, a railway, separated for instance from another by a mountain range, could not be considered as in the neighborhood of such other line, even if within 10 or 15 miles of it. Accordingly, objections to the contemplated line on the ground that it would be in the neighborhood of and parallel with the existing railway cannot in the circumstances of the case be said to be unreasonable. Manifestly a railway that is near enough to another line, to compete with it, must be regarded as in the same neighborhood.

"Secondly.—It should be pointed out that assertion is not demonstration. It was, it is true, asserted earlier under examination, that the proposed line would not be competitive with or detrimental to the existing railway. Not only was that assertion wholly unsupported, except by the inaccurate statement that no trade went eastward from the Fakumen region to districts operated by the existing system, but was contradicted by the suggestion as to the necessity of the new line in the commercial interest of Newchwang. The assertion is moreover irreconcilable with the statement of Sir A. Hosie, which has already been quoted.

"Thirdly.—To say that in no country in the world could the vested interests of a railway preclude the construction of another line within a distance of 35 miles is to say more than can be substantiated. Even in China, at least one instance in direct contradiction of that statement actually exists. In 1898, the Russo-Chinese Bank entered into a contract with the Chinese Authorities concerning the construction of the Chengting-Taiyuan Railway. Article 5 of that contract reads as follows:

" 'During the whole 30 years or while the loan is unredeemed, the high authorities of Shansi shall, at the request of the Company, interdict the construction of another railway or other mechanical means of transport between Liuliu (Chengting) and Taiyuan, as such would be detrimental to the interest of this Railway.'

"Later in the same year, the Peking Syndicate signed an Agreement with the Shansi Bureau of Trade for mining purposes, iron works and transporting mine products of all kinds in the Province of Shansi. Having regard to the engagement above quoted, it was provided in Article 17 of the Peking Syndicate Agreement—

> " 'With reference to the Chenting to Taiyuan Railway for the construction of which the Bureau has borrowed capital from others, the Peking Syndicate, to avoid dispute, shall not construct any railway within 10 Li on each side of it.'

"Aside from this concrete case it may be pointed out that in a country where for centuries produce in large quantities has been transported over long distances by men and beasts, 35 miles is certainly well within the radius of competition for lines of railway.

"But, it should be added, the distance between the existing and proposed lines is, in fact, considerably less than 33 miles, from Hsinmintun to Mukden is 32 3-10 miles; from Fakumen to Tiehling, 27 2-10 miles and from Shintaitzu on the South Manchurian line to the nearest point on the proposed line is only 24 8-10 miles.

"Fourthly.—The pronouncement that the Peking Agreement of 1905 was violative of Article 4 of the Treaty of Portsmouth and opposed to the pledge given by Japan to the Powers, is a statement that the Newchwang Chamber of Commerce was not competent to make, and one which that body would never have made, if it had given due consideration of the question. The Treaty of Portsmouth was between Japan and Russia, and if Japan has concluded engagements with other Powers, inconsistent with that Act, it is for Russia to call her to account. The Peking Agreement was concluded with China and the Chinese Plenipotentiaries had the Treaty of Portsmouth before them when negotiating that Agreement. Accordingly, it may be assumed that China no less than Japan considered that Agreement as entirely reconcilable with the Portsmouth Compact. The only pledge that Japan has given to the Powers is the pledge regarding the open door in China, which has equally been given by the other powers, America, Germany, France, Great Britain and Russia. Those Powers have all been parties to, or have supported in favor of their subjects and citizens, railway concessions in China, in which appear stipulations similar to and equally comprehensive with the provisions of the Peking Agreement above mentioned. Thus in the Agreement with the American China Develop-

ment Company of July 13, 1900, for the construction of the Hankow-Canton railway line, it was provided—

"That without the express consent in writing of the Director General and the American Company, no other rival railway detrimental to the business of the same is to be permitted, and no parallel roads to the Canton-Hankow line are to be allowed to the injury of the latter's interest, within the area served by the Canton-Hankow main line or branch lines.

"In the Agreement of July 9, 1903, with the British and Chinese Corporation, Limited, for the construction of the Shanghai-Nanking line, the same stipulation, mutatis mutandis, appears.

"The Canton-Kowloon Railway Agreement of March, 1907, between the Wai-wupu and the British and Chinese Corporation, Limited, contains the following:

" 'It is further understood that the Chinese Government will not build another line competing with this railway to its detriment.'

"We have already seen the Russo-Chinese Agreements regarding the Shanhaikuan-Yinkow-Hsinmintun and the Chengting-Taiyuan lines, as well as the Anglo-Chinese Shansi engagement, and it will be sufficient, in concluding this branch of the question to call attention to the fact that Germany, in virtue of her Kiaochow engagements with China, claims the exclusive right of railway exploitation in the Tientsin-Chinkiang Railway because in part a British and in part a German undertaking.

"The last point in the letter of the Chairman of the Newchwang Chamber of Commerce, which requires examination, is the statement that the territory to the west of the Liao Ho was, during the Russo-Japanese War, specifically proclaimed by China and officially recognized by the belligerents to be neutral territory, and consequently even if it be assumed that the undertaking in question was valid, that undertaking could only have had application to the territory which was within the area of hostilities and which furnished the cause of the war and was the subject of the Treaty.

"In making that statement the author of the letter, in his partisan zeal in defense of the interests of Newchwang, forgot his history as well as his geography.

"The region through which the projected line was to run is in Manchuria, and was as much the cause of the war and the subject of treaty adjustment as any other portion of the three provinces. Hsinmintun and Fakumen were opened by the Peking Treaty of 1905 and the Hsinmintun-Mukden line was one of the questions disposed of by that Treaty.

"China specifically proclaimed that her neutrality extended to those localities unoccupied by belligerent troops. The region in question was throughout the war so occupied by one or the other of the belligerents.

"Japan officially recognized as neutral Chinese territory not occupied by Russia.

"Russia officially declared the following area to be outside the neutral territory:

"A portion of the region situated on the right bank of the Liao Ho, the boundaries of which are formed by the Liao Ho and by the railway line Yinkow-Kaopantze; afterwards by the railway line to a point where this line crosses an affluent of the Liao Ho, the Liou Ho (a little south of Hsinmintun), and finally by the said affluent, the Liou Ho, as far as the frontier of Mongolia.

"On the ground, therefore, of historical precedents no less than reasonable precaution, the action of the Japanese Government in interposing a veto against the construction of the projected line, cannot in justice be condemned.

"The Newchwang Chamber of Commerce, as is seen from its resolution, places great reliance on Article IV of the Treaty of Portsmouth. Accordingly, it may be explained that a measure which is injurious to one Power cannot fairly be regarded as a general measure 'common to all countries.' "

After the publication of the above Japanese argument defending her position, which reflected somewhat on Chinese diplomacy, there was issued from Peking another lengthy rejoinder to Japan, which was probably the first time that the Chinese government has ever attempted to court newspaper publicity. This document in answer stated:—

"The important questions raised in the Resolutions adopted by the Newchwang Chamber of Commerce on March 13, are confused by side issues and irrelevant facts.

"Its most significant feature lies in the fact that the position assumed by Japan based on ante-bellum precedents, implying recognition of that very 'sphere of influence' policy which it was the avowed object of the Anglo-Japanese alliance to replace by 'the independence and territorial integrity of the Empire of China and equal opportunities therein for the commerce and industry of all nations.' That the Japanese Government should now permit the justification of the position assumed in regard to the Fakumen line by reference to the position occupied by Germany in Shantung, is somewhat disturbing.

"The Japanese Government, however, goes further, and, claiming the reversion of all the 'rights and privileges' heretofore owned by Russia in the South Manchuria Railway, proceeds to quote the Russian Manchurian Convention of April, 1902. Ignoring the important fact that Russian diplomacy was herein chiefly concerned with the restriction of British influence in general and the extension of an important British enterprise in particular, we have the mis-statement of one important fact followed by the suppression of another. The Japanese Government is well aware, in the first place, that the self-denying undertaking imposed upon British subjects in regard to railway exploitation in regions beyond the Great Wall was a direct consequence of the 'spheres of influence' régime at that time predominant; and, in the second place, that Russia on her side undertook (which Japan has never done or been asked to do) to abstain from all competition with British railway enterprises in the Yangtze valley.

"Nevertheless, the Japanese Government is unable specifically to deny that the supplementary clause of the Peking Agreement of December 1905 (upon which rests the veto which restricts China from extending her railway into North-western Manchuria) does in fact violate a plain declaration of the Treaty of Portsmouth. On this important point the argument adduced in the Memorandum under review is illuminating. It reads as follows: 'If Japan has concluded arrangements with other Powers inconsistent with that Act, it is for Russia to call her to account.' "

Moreover, it continues:

"The Peking Agreement was concluded with China, and the Chinese plenipotentiaries had the Treaty of Portsmouth before them when negotiating that Agreement, from which premises is deduced the ingenious but entirely gratuitous conclusion that 'China, no less than Japan, considered that Agreement as entirely reconcilable with the Portsmouth compact.' Here we come to the crux of the matter. It is precisely because the Chinese Plenipotentiaries were assured during these negotiations that the supplementary clause upon which Baron Komura insisted would naturally and necessarily be interpreted in the light of the Portsmouth Treaty (which guarantees to China the unrestricted development of her Manchurian territories) that they now take exception to the restrictive interpretation which the Japanese Government is placing upon that clause. This point is made unmistakably clear in the dispatch which the Chinese Government addressed to the Japanese Minister at Peking on May 6 last, from which the following extract is translated:—

" 'In referring to the Conference negotiations and stating that China is now disregarding her Treaty engagements by taking action prejudicial to the interests of the South Manchuria Railway, Your Excellency is apparently unaware of the fact that at the time this Agreement was concluded between the Japanese and Chinese Plenipotentiaries, the latter maintained that the word 'parallel' was too comprehensive and that the agreement should state definitely in miles the distance within which no parallel line should be built. To this request the Japanese Plenipotentiaries replied that if the number of miles were fixed, it might create the impression in other countries that Japan intended to restrict Chinese railway enterprise. They were subsequently asked to agree that the distance should be understood to be such as would be usual in England or America, but objected to this proposal on the ground that no general rule exists on the subject. Moreover, the Japanese Plenipotentiaries declared that under no circumstances would Japan do anything to restrict China in future from any steps she might desire to take for the extension of means of communication in Manchuria. These declarations were made in all sincerity and at a time when the most friendly relations existed between the two countries, and should therefore be observed by both parties.'

"Reserving for further consideration the technical grounds upon which the Japanese Government bases its objections to the Fakumen line as a competitor with the S. M. Railway, it is pertinent here to recapitulate the avowed objects of the Anglo-Japanese Alliance. They are thus fittingly described by the Japanese author above quoted (Professor Asakawa):

" 'The alliance exists solely for the purpose of safeguarding effectively the interests already acquired by the two Powers on the common ground, and it is implied, in an unmistakable manner, that those interests may best be maintained by the total abstention, in any event, from all aggressive or exclusive tendencies in China and Korea, and, what is equally important, that the observation of these principles would forcibly tend to preserve the general peace in the Far East. Owing to the covert violation of these principles by another Power, however, peace has been broken, but the Anglo-Japanese agreement has not expired. The latter would, however, fall to the ground, the moment one of the parties, either as a result of a war or otherwise, should attempt to depart from the principles of the open door and the territorial integrity of the neighboring Empires.'

"It can scarcely be seriously believed in Tokio that the veto imposed by the Japanese Government in regard to the Fakumen Railway is regarded by any intelligent person as consistent with a policy 'intended to safeguard effectively the interests already acquired by the two Powers on the common ground.'

"Equally inadmissible is the Japanese Government's contention that 'the policy of the open door does not prevent Railway exploitation.' Here, again, everything depends on the meaning of the terms used; but there can be no question that the exclusive privileges claimed by Japan in connexion with her ownership of the S. M. Railway are a complete repudiation of the open door policy. Railways may be, and are, built on Chinese territory as financial and industrial enterprises in which foreign powers are interested, and this without violation of the open door, so long as the enterprises in question are for the benefit of, and under the direction of, the Imperial Chinese Government, affording equal commercial opportunities to all comers; but it were futile to assert that the doctrine of equal opportunities is compatible with such privileges and such control as Japan is now endeavoring to exercise over Manchuria by virtue of her acquisition of the S. M. Railway. If proof of this statement be needed by those unacquainted with the situation, it is to be found in the fact that the Municipal Regulations recently promulgated in the name of the Russian Railway authorities at Harbin, regulations which ignored the Treaty rights of the subjects of all other Powers, received the diplomatic approval and support of the Japanese Government on the understanding that similar conditions would be recognized by Russia as applicable to the Japanese Railway Settlements in Southern Manchuria! It is useless to deny the fact that the Southern Manchuria Railway, won by Japan's victorious arms, is an instrument in the hands of the Japanese Government for the promotion of exclusive Japanese interests; the situation is sufficiently recognized, diplomatic conventions notwithstanding, by the Powers, and the forces of 'geographical gravitation' which must inevitably tend to the advancement of Japan's interests to the east of the Liao river are generally understood. But the question which is raised by the Fakumen

railway scheme is whether, and how far, those forces of 'geographical gravitation' are to be extended westwards, to the serious prejudice of vested British interests in that region, the detriment of international commerce and the limitation of China's sovereignty. In the Hsinmintun-Mukden Railway Agreement (May 1907) Japan herself recognizes the Liao River as the natural limit, beyond which her claims to special and exclusive privileges cannot properly be advanced.

"In view of the essential and wider aspects of this question, it is almost superfluous to examine the technical reasons and economic precedents whereby the Japanese Government seeks to justify its veto of a 'parallel' line. Nevertheless, as great stress has been laid upon the existence of a similar restrictive clause in the railway agreements made with China by other nationalities, and as the argument may appear forcible to the uninitiated, it is expedient to explain its inapplicability. The agreements to which the Japanese Government particularly refers, viz.: the American contract for the Hankow-Canton Railway, and the British contract for the line from Canton to Kowloon, were purely financial and industrial agreements made between the Chinese Government and private companies for the construction of Chinese Government railways under Chinese control; and the lines being mortgaged as first security for the repayment of the necessary loan, the inclusion of the restrictive condition in regard to parallel lines was obviously beneficial to all concerned since it facilitated the raising of capital abroad.

"Nevertheless, as the history of railway construction in China clearly proves, this condition was never intended to be (nor could it be) arbitrarily interpreted by the representatives of the foreign bondholders to restrict the Chinese Government from constructing other railways parallel to these lines, the evident and only intention of the condition being to reassure investors that the Chinese Government would not (presumably at the instance of another Power) do anything to injure property which is mortgaged for security of foreign loans. No such argument can, however, be applicable in the case of the South Manchuria Railway, which is not a Chinese railway, for which China has incurred no liabilities and in which she is not even financially interested.

"Finally, referring to the Newchwang Chamber's contention that 'in no country in the world could the vested interests of a railway preclude the construction of another line within a distance of thirty-five miles,' the Japanese Government cites what it alleges to be 'at least one instance in direct contradiction of the statement,' and thereupon proceeds to quote the engagement given in the Peking Syndicate's Shansi agreement whereby, to avoid undesirable competition with the Chengting-Tai-yuen railway, the syndicate undertook not to construct any railway within 100 *li* on either side of it. We can only presume that the Tokio authorities are unaware that 100 *li* are, for practical purposes, the equivalent of thirty-five miles; it is inconceivable that, if they were informed of the fact, they should cite, as argument on the Japanese side of the case, a precedent which completely justifies the construction of the Fakumen railway. The proceeding is disingenious; but hardly less so the citation of the Russian Bank's agreement (Art. V, Chengting-Taiyuan Railway contract) whereby China was bound not to permit the construction of two parallel railways between the same two terminal points.

"These, however, are side-issues, which serve merely to detract attention from essentials. If the question be considered simply in the light of Japan's definite and undeniable obligation to recognize and maintain China's unimpaired sovereignty in Manchuria, and to promote the development of China's commerce and industries in that region, then assuredly (and because the greater includes the less) the Peking agreement of 1905 and its supplementary clauses must be interpreted in the light of the declared principles and objects of the Anglo-Japanese Alliance. For, if otherwise interpreted, it is evident that the Japanese Government has failed to observe that clause of the Treaty of Alliance which, having for its object the mutual protection of the established interests of both powers, provides that 'neither of the Contracting Parties will, without consultation with the other, enter into separate arrangements with another Power to the prejudice of the interests described in the agreement.' "

And here the matter rests at present. Negotiations are in progress at Peking, and it is understood that the new Japanese ministry is disposed to recede from the stand taken, owing to the bitter storm of protest which has arisen in Great Britain and elsewhere. A favorable solution to the question is vital to China's future, and the development of Manchuria, for if Japanese prohibition holds, it effectively checks the exploitation of the country west of the Liao, and Eastern Mongolia, and precludes the building of trunk line northwards to Tsitsihar. On the other hand, the construction of such a line, while not materially affecting the commercial value of the South Manchuria Railway, from a stategic point of view, must always be a menace to Japan in Manchuria.

We believe, however, that the Japanese contention in regard to the serious competition of the extension with their line, is not of great weight, for Manchuria is vast enough, and her resources so many, that there will soon be room for two or three trunk lines from north to south.

If politics were eliminated from the situation, and everybody settled down to real earnest effort to develop the country and resources, the South Manchuria Railway could never begin to handle the freight even by double tracking its line. There is room for a Chinese railway to Tsitsihar, though it may be some time before it would pay, but eventually, under proper management, such a road would also reap a rich harvest through the settlement of the waste lands, the growth of cities and the increase of crops.

It is to be earnestly hoped that a settlement of the question will soon be reached.

JAPANESE IN MANCHURIA

(BY OUR CORRESPONDENT.)

Mukden, Dec. 20th, 1908.

As a natural result of the war many Japanese found their way into Manchuria and remained there to exploit the country: with the armies came the camp followers, adventurers, petty merchants, geisha and prostitutes, discharged soldiers returned to the promised land, and brought their families. The railway employed thousands, while others set up as small traders, and strove to wrest a profitable living from the hardy Manchus. To the victors belong the spoils, and the average Japanese adventurers acted on the old adage. If a house looked good to him he occupied it, if the native did not show the proper respect due the victor, he was pummelled and put through a course of jiujitsu. For a long time the adventurer held his way, and the Government apparently had no control over his actions. The past actions of the independent Japanese in their dealing with the natives have caused much of the ill feeling existing to-day between the two governments. While to-day there is still some aggressive spirits in Manchuria, it may be stated, however, that the Japanese Government has succeeded in eliminating most of the disturbing element, by sending them home or to Korea.

While the Japanese Government must necessarily shoulder the blame for the actions of their nationals, the situation is one most difficult to handle and there are extenuating circumstances which relieve the Government from censure.

Adventurers and the rough lawless element invariably follow a victorious army, and operate under the protection of the flag. The vanquished or the peaceable inhabitants of the country are at their mercy, and few escape the depredations of the victor. This class is a serious menace in any land, and even amongst the more advanced nations, strict laws have to be enforced to keep them in check. For the prejudiced critic, however, the Japanese in Manchuria have no redeeming qualities, but to the fair-minded observer, the situation there finds many parallels in recent history.

In the Philippines, the American camp follower, and others of his kind, imposed on the native, viewed the country as his by right of conquest, and committed many depredations under cover of the unsettled state of affairs. As in Manchuria, these actions reflected on the Government and Americans as a nation, and strenuous measures had to be finally adopted to rid the islands of the undesirable element. In Cuba, as in the Philippines, there are still disputes with the Government, as to the ownership of lands and houses occupied by the military, which are being amicably adjusted, the railway had an immense claim for the confiscation of their property, and was settled by a compromise after several years.

And the same situation exists in Manchuria, only to a greater extent. The Japanese Government had little control over Japan's adventurous sons who swarmed over Manchuria, but gradually they have been caught up with and the worst element deported. Many left of their own accord, finding that their get-rich-quick dreams would never be fulfilled in a land where the native could live on less and be content with less than the hardy Japanese. So today the situation is much improved, and as time goes on this evil will be eradicated.

The Japanese may have been overbearing and lawless, but they have had no monopoly. The Russians were worse, and if conditions in Harbin are any criticism, they are hard to beat.

The Chinese complain that in the city of Liaoyang the South Manchuria Railway officials have recently been making incursions into the mercantile business. They have established there what they designate as "Railway Stores," nominally for the purpose of supplying the railway staff with necessary merchandise, but really, it is charged, for the purposes of general trade. It is charged by the local merchants that the directors of the railway are privy to the scheme, and that similar stores are to be opened at other cities along the line.

It is obvious that such a scheme might be susceptible to grave abuses, inasmuch as so-called railway employees can buy at these stores any quantity of goods and resell them to small retailers at prices with which the ordinary tradesmen can not compete. This process, they point out, will be the more feasible inasmuch as railway stores and supplies can be imported free of duty by way of Port Arthur. There is no Chinese Custom House at Port Arthur and great quantities of such railway "supplies" are said to be entering by that port entirely free of duty.

The merchants of Liaoyang have held meetings at which concerted action has been taken, and a strong protest will be forwarded direct to the railway's board of directors.

Here we have a repetition of the old complaint of the Manila retail merchants against the Commissary Stores of the Army and Civil Government. These stores supply goods of every description to those connected with the Army or the Civil Government, at practically cost prices. They pay no duty, and as the Government purchases in immense quantities they receive the lowest prices. In Manila, the favored ones can purchase supplies at the stores for one-half or two-thirds under the price of the retail merchant. Of course the system is open to abuse but if honestly conducted there is little to be feared.

The protest of the Chinese will receive little consideration, as the Railway Company, or in other words the Japanese Government, has the right to sell stores to its soldiers at cost duty free, the same as other nations. It is too early to charge underhand action, until proofs are forthcoming. This circumstance indicates the situation in Manchuria, every move of Japan is viewed with suspicion, and behind any new undertaking there must always be some ulterior motive according to the Chinese.

The Chinese further claim that during the military occupation of Mukden a considerable number of Japanese immigrants, or fortune seekers, estimated at 5,000, swarmed into the city and established themselves wherever they could find shelter. Following the examply of the military, these fortune seekers and pette merchants looked about and, having found

quarters according to their liking, proceeded to occupy the same. In a few cases the owners of the property had temporarily abandoned the premises in order to escape the rigors of military activity. In such cases the Japanese swarmed into the houses and took possession. In a considerable number of other cases Chinese tenants were driven out of their homes to make way for the Japanese soldiers of fortune. And still in another class of cases, the Japaness secured quarters by offering Chinese landlords handsome rentals, and once comfortably established in commodious temple, or other buildings, straightway forgot the agreement to pay rent and continued to occupy the premises month after month to the grief of the native owner. It is somewhat remarkable also, say the Chinese, that the class of houses thus occupied by the Japanese was usually the best in the city.

When, therefore, other foreign officials and merchants arrived in Mukden and began looking up quarters they found nearly every desirable, or available house and compound in possession of the Japanese. At first they supposed, of course, that the Japanese occupants had duly leased the property and were regularly paying the rent therefor. They were shortly dissillusioned, however, by the Chinese landlords who complained most bitterly of the Japanese treatment, and begged the foreigners' assistance in removing the Japanese. Thereupon, the foreign officials and merchants began negotiations with the Chinese authorities to compel the Japanese either to pay up their rent, or move out. Progress in this direction was very difficult, however, owing to the fact that the Japanese Consul General, who is the highest Japanese official in the city, and who has greater authority over his nationals than other consular representatives over theirs, refused either to require his nationals to pay the rent, or to vacate the houses. Apparently the Consul General took the stand that inasmuch as these properties were occupied by his nationals during war times they had a right to remain therein, to the exclusion even of the rightful owners.

In a number of cases, however, where strong pressure could be brought to bear upon the Japanese Consul General and the fact pointed out to him that his people had not the slightest right to occupy private property without payment of a fair rental being made in return, he would request the occupant of a property to vacate on condition that the prospective foreign renter pay a sum of money to reimburse the Japanese occupant for repairs made upon the premises. Sometimes as much as Yen 5,000 ($2,500) would be demanded for alleged repairs, whereas it would be shown that not to exceed Yen 50 ($25) had in reality been expended. The German Government had to pay something like $2,500 in order to get the Japanese occupants of a Lama temple to vacate, notwithstanding the fact that the temple was wanted for the housing of its Consulate.

It is alleged that the experience of the German Government has been common to most foreigners now living in Mukden. At the present the British consular representative is desirous of leasing a temple compound adjoining that occupied by the American Consulate General, but which is in possession of Japanese.

The compound in question is under the control of the Chinese Commissioner for Foreign Affairs to whom the British Consul General has applied for a lease. And although the Japanese have occupied the property for two years or more during which time they have paid no rent, yet the Chinese authorities are powerless, or at least refuse to exercise power enough to turn the Japanese out. In this case the occupants demand that the British Consul General pay Yen 2,000 ($1,000) to reimburse them for repairs made on the premises, when, in fact, the Chinese contend they have not spent Yen 200 ($100) on the entire compound. Nevertheless, the Japanese Consul General refuses to require his natonals to give up the property until the Yen 2,000 have been paid to them.

This question of the illegal occupation by Japanese of Chinese private property is one of the most vexatious problems with which the Chinese authorities have to deal. The Japanese refuse to pay either rent or taxes, or to give up the property, and the Japanese consular representative either refuses to require his nationals to vacate the property, or is utterly unable to control his own people.

In Antung also there is an open question between the two nations over expropriation of lands. A correspondent of the *P. and T. Times* sums up this situation as follows:

"After the military withdrawal the Japanese occupied, and now hold 'as settlement and railway land,' 11,800 mow (1,966 acres) in addition to 1,666 acres more acquired by private parties with official assistance, all of which area was the property of various native land owners. These estates, by the specific evidence of dispossessed Chinese, seem to have been confiscated. The title deeds are still unregistered. The agreements to sell were, in a majority of instances, forced, often by threats of execution, from the trembling peasantry, who 'silently weeping'—one written protest states—signed away their patrimony. Many so-called contracts of sale were signed by women or by servants in the absence of male members of the family, and are of course, by any law, quite invalid. If a fair return for the land had been made, much criticism might have been disarmed, but it is matter of record that land, the market value of which varied between 300 and 400 taels ($240 to $320) per tein (1 acre), was taken arbitrarily at from $21 to $42. A great deal of hardship has thus been wrought in throwing out whole families, who know nothing but agricultural means to a livelihood, without other means of support. I was informed that a few of these evicted tenants had been allowed to come back as lessees upon the land once owned by them, paying to the Japanese 2-5ths of their agricultural returns, "2-5" in some cases, estimated by the Japanese actually exceeding the total amount of production on these particular holdings. Calculated in Japanese currency, the Chinese lessees have in instances paid an annual rental from 13 to 40 yen for land which the Japanese purchased at from 7 to 17 yen, and for buildings on the railway land, formerly owned but now leased by their Chinese tenants, the Japanese have demanded a yearly rental of from 40 to 50 yen per chien in cases where the purchase price paid by them did not exceed from 14 to 20 yen.

"All of these cases are in the so-called Japanese 'railway settlement,' a township whose boundaries literally run along the crests of the hills behind the city where the defining timber monuments can be seen against the sky. But even in the Chinese city itself many buildings, the largest and most desirable, are still occupied by Japanese police, gendarmerie, and railway guards, held by the Japanese in spite of express provision for their return contained in the Komura Convention of 1905, and reaffirmed in the supplementary agreement concluded between the Viceroy and the Japanese Consul General at Mukden in 1907.

"Over against these crying abuses all that can be said by way of palliation is, that since the coming of the foreign Consuls and the changes in personnel above mentioned, no new acts of invasion have been committed, and a tract of land on the river north of the native town, which has been for a long time held by the Japanese military authorities without any benefit to themselves and with considerable inconvenience to the Chinese, was finally restored to the Intendent last September."

COAL MINING IN CHINA

Sir Alexander Hosie, Commercial Attaché to the British Embassy at Peking, recently made a report on the coal mines of which the following is of interest and indicates that with the introduction of modern methods there is promise of unusual development in this industry.

"The three mines of the Chinese Engineering and Mining Company, northeast of Tientsin, produced nearly one million tons in 1906. These mines supply the Northern Railway and steamers and local consumers throughout northern China and part of Manchuria.

In 1905 a mine in Honan, in which a vein thirteen feet thick had been opened, was flooded so badly that it was necessary to send to England for additional pumping machinery. The coal of this vein proved too friable for use, but a vein of good quality ten feet thick was found at a lower level. In 1906, the Shantung Mining Company extracted 163,000 tons of coal from its Fang-tzu collieries. The company operates a briquette factory and one of the few coal washers in the Far East, with a capacity of 150 tons per hour.

In Kiangsi, are hundreds of coal mines operated by the most primitive methods. Near the Hunan frontier, however, are mines operated under the direction of German mining engineers and connected with the Siang River by a railway 200 miles long. These mines were opened in 1908 for the purpose of supplying the forges and steel works of Hanyang, which had been greatly developed under German management. Their output, which can be increased to 3,000 tons per dary, is now 1,000 tons, most of which is converted into coke. The main shaft is 13 feet in diameter and 385 feet deep. Two veins are being wiorked, at depths of 160 and 320 feet. The main gallery is 3,000 feet long and the hauling is done by electric locomotives. It is estimated that this district of Pingsiang contains 300 million tons, of which the greater part can be extracted through galleries, and the remainder can be reached by a shaft 650 feet deep. Attached to these mines are 174 coke ovens, a briquette factory, a fire-brick factory, a foundry, coal washers, etc. From the railway terminus at Chuchow the coal and coke are conveyed to Hanyang in towboats and junks. The Pingsiang Coal Mining Company has achieved a brilliant success in the face of enormous difficulties, and it deserves great credit for the introduction of European methods into a primitive land.

The following table of the annual production of coal in China is condensed from a table compiled in 1906, by Prof. Drake, of the Imperial University of Tientsin.

	Annual Prod. in tons.		
Province.	Mines owned by *Europeans.*	Mines owned by *Chinese.*	*Total.*
Chili	1,200,000	1,000,000	2,200,000
Shansi	——	3,000,000	3,000,000
Shantung	300,000	500,000	800,000
Honan	100,000	700,000	800,000
Other Prov	230,000	1,860,000	3,090,000
Total	1,830,000	7,060,000	8,890,000

AMERICAN BRIDGE IN BURMA

Advices from Rangoon, Burma, state that the new Scherzer Rolling Lift Bridge across the Ngawun River was completed and opened for railroad traffic Dec. 15th. This, the largest bridge constructed in Burma, has a movable span 220 feet long, the total length of bridge being 820 feet. The bridge is constructed on the main line of the Burma Railways extension connecting Rangoon with Kyngin. The Nga wun River is in the fertile delta of the Irawaddy River and forms a connection between this River and the Bay of Bengal. The Government authorities required the large movable span to expedite the railroad traffic and the heavy traffic on the river carried on by the Irawaddy Flotilla Company's vessels which traverse these waterways from the east to the interior of Burma as far as Mandalay, more than 400 miles inland. The bridge was designed by The Scherzer Rolling Lift Bridge Company of Chicago and New York and manufactured in England at the works of Spencer & Company, Melksham, Wilts, and erected in Burma under the charge of the engineers of the Scherzer Rolling Lift Bridge Company. Though the difficulties to contend with were very great the bridge was completed within a year. During the rainy season, extending from May to October, the river was subject to great floods.

GOVERNMENT OF THE MANCHURIAN PROVINCES

Prior to the outbreak of the Russo-Japanese War, the provincial administration of Shengking was headed by the Tartar General and Viceroy, assisted by a Civil Governor and a Manchu Lieutenant General. Five Boards of War, Punishment, Revenue, Works, and Ceremonies, respectively, were presided over by Vice-Presidents, who in their several departments were colleagues of the Viceroy. There were two "circuits," one under the Taotai of the Eastern Marches, who resided at Fenghuangcheng; and the Shanhiakuan circuit under a Taotai with the rank of Brevet Provincial Judge residing at Newchwang.

Under the last Tartar General, Viceroy Chao Ehr Hsun, the entire system was altered. The Civil Governorship was abolished and the functions of the Five Boards assumed by the Viceroy who delegated the performance of his duties to various offices, the Provincial Treasury, the Bureau of Military Affairs, the Bureau of Justice, and the Bureaus of Mines, Public Works, Agriculture, Industry and Commerce, Education, and Foreign Affairs, the Land and Tax Offices, the Salt Monopoly, and Telegraph Administration. The Manchu Military organization was left unchanged. Upon the opening of the Antung Custom House, the Taotai of the Eastern Marches was made Customs Taotai at that port, the Shanhiakuan Taotai having long performed similar functions for Newchwang. Chao Erh Sun was neither a strong man nor a particularly able official, but he was patriotic, and during the first months after conclusion of the war he attempted to combat Japanese aggression in the face of heavy odds. In so doing he earned the active enmity of those whom he endeavored to oppose, and those journals susceptible to Japanese influence for months criticized him and clamored for his removal and the appointment of a more tractable successor.

His Excellency CHAO ERH-HSUN, Viceroy of Szechuen.

ONE OF CHINA'S STRONG MEN. AS TARTAR GENERAL OF MUKDEN FROM MAY 1905, TO MAY 1907, HE WAS A PROMINENT FIGURE IN CHINESE POLITICS. ON HIS SHOULDERS FELL THE BRUNT OF DEFENDING CHINA'S SOVEREIGNTY IN MANCHURIA AT A TIME WHEN JAPAN'S POLICY WAS MOST AGGRESSIVE.

The Official List refers to him as a Han-chun or Chinese Bannerman and a Metropolitan Graduate of the year 18-4; Prefect of Kuei-yang; Kuei-tung Tao Kueichow, Oct. 1893; Judicial Commissioner, Anhui, April 1895; Judicial Commissioner, Shansi, July 1898; Financial Commissioner, New Dominion, November 1898; Mourning, December 1899; Financial Commissioner, Shansi, 1902; Governor Hunan, January 1903; Acting President Board of Revenue, August 1904; Officiating President Board of Revenue, December 1904; Tartar General, Mukden, May 1905; Governor General Szechuen, May 1907 (did not proceed); Governor General Hu-kuang, September 1907; Governor General Szechuen, March 1908.

This campaign apparently received the support of Yuan Shih Kai, who appreciated the advantages of maintaining an attitude of complacency toward the Japanese policy in Manchuria, and it is believed by those best acquainted with the situation that in so doing he followed the example set by his illustrious predecessor, Li Hung Chang, who to fortify his own position allied himself with the Russians. Yuan, whose power was derived from the Empress Dowager, was, owing to his action at the time of the *coup d'état* of 1898, distrusted and disliked by the late Emperor, and the accession of his brother, the Prince Regent, to power was the signal for his downfall.

Hsu Shih-Chang, one of the Imperial Commissioners who visited Manchuria to make a study and report on conditions, was named as the successor of Chao Erh Sun. Yuan was his personal friend and political patron, and in view of this official's alleged willingness to acquiesce in, if not actively support the prosecution of Japanese interests, Hsu's selection for the Viceroyalty was regarded as significant.

Events have proved, however, that Viceroy Hsu and his colleagues, Tang Hoa-Yu and M. T. Liang, were able to combat and checkmate the moves of Japan, and it is due largely to their broad policy, assisted by the American consular representatives, that Manchuria to-day is firmly under China's sovereignty.

The Imperial Edict appointing Hsu to the Viceroyalty of the Three Eastern Provinces is as follows:

IMPERIAL DECREE

"Owing to the poverty-stricken condition of our subjects in the Manchurian Provinces due to the unsatisfactory government existing, we have deemed it necessary to reorganize it and abolish all glaring faults therein for the betterment of the inhabitants. We therefore command that the three Manchurian Provinces—Shengking, Kirin, and Heilungchiang—be combined into a single Viceroyalty under the style and designation of the Viceroyalty of the Three Eastern Provinces, and that the Tartar Generalship of Fengtien be changed into that of Viceroy of the Three Eastern Provinces with control over the duties attached to the Tartar Generalship of the Three Provinces aforesaid. The said Viceroy will have, moreover, a yamen in each of the Three provinces where he will in the future sojourn at certain periods during his incumbency. The provinces of Shengking, Kirin, and Heilungchiang are to have each a Governor for the better supervision thereof. We hereby appoint Hsu Shih Chang to be Viceroy and Tartar General-in-Chief of the Three Manchurian Provinces, and he is also further given the title and powers of High Commissioner for Manchuria. Tang Shao Yi is appointed Governor of Shengking Province, Chu Chia Pao, Acting Governor of Kirin, and Tuan Chih Kuei is given the brevet rank of Provincial Treasury and appointed Acting Governor of Heilungchiang Province. We hereby also exhort the said Viceroy and Governors to put forth their best endeavors and diligently do their duty in their several spheres of influence, striving to honestly discharge methods and prove able to lay their nature, purposes, and advantages before the natives in an intelligent and convincing manner."

The Viceroy and Governor-General of the Three Eastern Provinces is the head of affairs, the position being one of great importance and dignity; the civil and military authorities are all controlled by, and subject to him, and both the land and the sea forces are entirely under his command. Next in rank are Governor Tang-Shao-Yi of Mukden, Chen Chao Chang of Kirin and Chow Shu Mu of Heilungchiang; then follow the Lieutenant Generals, Chancellors, Commissioners of the Foreign Offices, Provincial

Judges, Commissioners of Education, Commissioners of the Civil Affairs, Commissioners of Manchu Affairs, Commissioners of Revenue, Commissioners of Commerce, Agriculture, and Industry, and the Commissioners of Police, Mining Bureaus, Salt Departments, Departments of the Provincial Troops, District Police Departments, Military Departments, Mints, Arsenals, Provincial Collectorates, the Cattle and Horse Tax Departments.

HIS EXCELLENCY VICEROY HSU SHIH CHANG

Mukden, situated in the centre of Manchuria and about 330 li north-east of the Port of Newchwang, is the capital of the Viceregal Government.

Official business is carried on in the new European style yamen called the Government House. A spacious hall runs through the center, on one side of which are the offices of the Viceroy and Governor with well-furnished reception rooms, while on the other side are officers of the two chancellors and other high officials of the Province. The Viceroy and the Governor are assisted by the Senior Chancellor H. E. Liang Ju Hao and the Junior Chancellor H. E. Chien Nung Hsin, formerly a Peking official. The following are the names of the heads of the different departments of Mukden arranged according to the order in which they stand:—

Fu-tu-tung Yamen.—The head of this department is H. E. To Wen, who has the general control of the two Imperial Tombs. Previous to the appointment of a Governor General for the Three Eastern Provinces he was a lieutenant-general of the Manchu force.

Foreign Office.—Commissioner, H. E. Tao Ta chun, a well educated Japanese scholar, is in charge of all the diplomatic affairs in Mukden. He is assisted by H. E. Liu Chia Chao, a returned American student of the class of 1884 of Yale College. He is at present with H. E. Tang Shao Yi on the Special Embassy to the United States. This position is temporarily filled by Taotai Key Tsu Ki who is also a returned American student of the class of 1883 Yale, and was in the early part of this year Taotai of the newly opened port of Antung. In addition, there is a large staff of officials who speak fluently French, Russian, English, Japanese, and German.

Bureau of Education.—The commissioner of this department has charge of all the schools in this province. The late commissioner by the name of Chang Hok Ling, a member of the Hanlin College, took much interest in foreign methods.

LIEUTENANT GENERAL TO-WEN,

A member of the Imperial Clan and Military Lieutenant Governor of Shenking Province (Mukden) in command of the Manchurian Army.

The Court of Justice.—The Provincial Judge, although working under the Viceroy's order, is also in direct contact with the Board of Punishment in Peking. The present Judge is H. E. Wu Fang under whom are all the Provincial and Local Courts.

Bureau of Manchu or Banner Affairs.—The commissioner of this department, named H. E. Enchi, is in charge of all the Manchu affairs, the old Palace, and the Manchu land

Bureau of Civil or Internal Affairs.—The commissioner of this department, named Chang Yuan Chi, has charge of all the civil, affairs of the province, such as government, erecting public buildings, laying out roads, and superintending the municipal boards of the different towns.

Bureau of Revenue.—The commissioner of this department, Chang Hsi Luan, has been in Manchuria for more than forty years, rising to his present position from a sub-magistrate; he has control of all the revenue and taxes of the province collecting and disbursing all public accounts, etc.

Bureau of Commerce, Agriculture, and Industry.—The head of this department is H. E. Huang Kai Wen, a cousin of H. E. Huang Kai Chia, a well-known returned American student who died after his mission as the Commissioner to the St. Louis Fair 1903. Under this department are the Mining, the Fisheries, Forestry, and Agricultural Bureaus.

Police Department.—The commissioner of this department, H. E. Taotai Tung Chia Chun, was formerly the prefect of Fengtien. Under his orders are the police force of Mukden, and the province.

Provincial Government Bank.—The director of this bank is Mr. Hu Chun Tseu and that of the Government Bank is H. E. Po Ju.

Salt Department.—The director of this salt department is H. E. Lu Chung Yu who, being a returned Japanese student, is in charge of all the salt affairs of Fengtien.

Mining Bureau.—The director of this department is H. E. Hsu Ting Chueh or better known to the foreigners as Kien Kow Chu. He was educated at New Bedford, Mass., and Poughkeepsie, N. Y., returning to China in the year 1901. He is also a sub-director of the Bureau of Commerce, Agriculture, and Industry.

The new Viceroy, Hsu Shih Chang, has in many ways proved himself to be an enlightened and progressive official. He has actively encouraged projects likely to increase the prosperity of the region under his control. Under his auspices chambers of commerce have been formed in all the principal trading centers, and the local officials have been disposed to treat with the merchants and consult with them on all matters affecting trade. These chambers have interested themselves in the formation of "self government" boards, organizations which, it is hoped, will eventually make representative municipal government possible.

Although the methods by which the people might best be prepared for self-government have been discussed in the local press and by the chambers of commerce, but little real progress has been made. The fact that the movement has been undertaken with the support of the official classes in itself bespeaks an unusual absence of reactionary feeling. The Viceroy appropriated 3,000 taels for the installation of a school of municipal administration and premises secured outside the Little South Gate of Mukden. This institution has been placed under the direction of the provincial Commissioner of Education, assisted by two consulting secretaries and twenty-one other officers.

Local officials were ordered to submit names of those fitted by education and experience to be trusted with the responsibility of assuming the direction of municipal administration. The men selected in this manner are to be trained in the school, and upon the completion of their course will be eligible for election as members of the municipal government, which will be supported by general taxation.

The subjects included in the course of study are local geography, elementary drawing, arithmetic, law and municipal government. A Japanese instructor was engaged to teach the above.

Similar schools are to be opened in Tiehling and Liaoyang.

Suppression of opium habit.—The authorities have been active in enforcing the provisions of the anti-opium edict, and it is expected that all dens will be finally closed at an early date. Proclamations in *su hua*, the vernacular, were posted everywhere throughout the city urging the people to abandon the use of the drug.

There were 1,600 dens in Mukden, the daily consumption averaging 200 packets or about 1,000 pounds per day. It is stated also that about 2,600 pounds of bean oil were daily used in the opium lamps.

MUKDEN, MANCHURIA'S CAPITAL AND COMMERCIAL CENTER

Mukden.—The capital of the Three Eastern Provinces, ancient stronghold of the Manchu dynasty, whose founders lie buried to the north and east, and whose old palace is located in the heart of the city, Mukden is commercially as well as politically the most important city in all Manchuria

Low hills rise from the plain in which the city lies, their line which stretches north and south being broken by the valley of the Hun river which here opens into the great Liao plain, the shallow stream navigable only at certain seasons of the year flowing in a southwesterly direction passing about two and one-half miles south of the walls of Mukden.

The population of the city is given as 158,132, three-fifths of which number are males. There are about three thousand Japanese civilians and a handful of foreigners. About one-fourth the total number of inhabitants live within the square walled or inner city, with two gates in each of its four faces, the remainder reside in the suburbs, which are surrounded by an irregular mud wall approximately ten miles in length.

The station of the South Manchurian Railway is two miles distant from the outer wall and connected with the main thoroughfares of the city by an excellent macadamized road laid by Japanese contractors. From this point lines run to Hsinmintun, Antung, and to the junction at Suchiatun, six miles south of Mukden where the Fushun branch leaves the main route, giving grounds for the hope that under favorable circumstances the city may develop as a railroad and manufacturing center.

The public buildings, yamens and governmental offices, shops and private residences are substantially constructed of brick and stone. The streets are gay with parti-colored signs and banners and the general impression created in the mind of the observer is that the officials and merchants alike enjoy a rough and hardy prosperity; that there is little luxury and little poverty and vice.

His Excellency CHEN CHAO-CH'ANG

GOVERNOR OF KIRIN PROVINCE, MANCHURIA

A native of Canton, who speaks English fluently. Was associated with Chan Tien Yu in the construction of the Peking-Kalgan Railway and afterwards Junior Councillor of the Board of Communications; Deputy Lieutenant General of the Hun-Ch'un or Chinese Bannermen Dec. '07 and appointed to his present post at Kirin August, 1908.

His Excellency TANG SHAO-YI

GOVERNOR OF MUKDEN

Mukden is well policed and lighted. The Viceroy has established a hospital with foreign doctors in attendance, officially inspected abattoirs, and a brick kiln furnished with modern machinery, while serviceable foreign style furniture is made at an industrial institute which is connected with the provincial mint.

Tramway.—A Japanese Company with 300,000 yen capital obtained the right to construct a horse-car line from the railway station through the western suburb to the northern of the two gates in the west city wall and around the city to the north gate on the east side. It is expected that electricity will eventually be employed in the operation of this road.

Industries.—The principal articles manufactured in Mukden, cart wheels and coffins, supply only the city and its immediate vicinity. The local tanners are reported to be the most expert in China and formerly controlled the fur markets of Manchuria. Since the war, however, trade has been dull, prices high, and many of the dealers have moved elsewhere. There are forty bean-mills with an output of 3,000 cakes per day. Dyeing establishments prepare uncolored cottons and silks for the market; and timber yards, brick kilns and distilleries are operated in sufficient numbers to satisfy the local needs.

Following the example of the Japanese the Viceroy planned for Mukden a Chinese Commercial and Industrial Exhibition. The several buildings have been completed and filled with exhibits of Chinese manufactures from all parts of the Empire.

Improvements.—During the past few months there has been considerable activity on the part of the Chinese authorities in the building and repair of roads, and in the erection of new offices and quarters for the provincial administrative officials and gendarmes. The Chinese Imperial Railway's new station and division offices are also nearing completion and the erection of the new Japanese station of the South Manchuria Railway is well under way.

The objection of the Japanese authorities to the building by the Chinese of a wagon road connecting the city with the new station of the Chinese Imperial Railway having been overcome by the Chinese Government, the building of this important wagon road progressed rapidly and is now completed. The road is about two and one-half miles long and is macadamized with 18 inches of rubble, sand, earth and lime. This thoroughfare represents the most modern and the best piece of road making yet undertaken in Mukden. Notwithstanding the high prices for the work the roads inside the city, built by Japanese contractors, were very poorly made as is evidenced by the almost impassable condition of the main streets after less than two years' usage.

In the Japanese railway settlement also, there has been considerable activity in road-making, the longest stretch of new road being that connecting the main road leading into the walled city with the new station of the South Manchuria Railway. This road covers a distance of nearly two miles and the macadam used is similar to that of the Chinese road mentioned.

The subject of better street paving and road-making is one that is engaging the serious attention of the Mukden Government at present, and as sufficient revenue for this purpose is secured, further improvement in this direction may be looked for. A considerable appropriation was recently made for laying out a public park planted with trees purchased in Japan, and enlivened by booths and tea houses for the amusement of the public. The park is now open to the public.

The American Vice-Consul General at Mukden, Frederick D. Cloud, in a recent Consular Report on Conditions in Mukden, mentions the improvements taking place inside the city and especially the repairs to the Palace. He says:

"While speaking of improvements it may not be out of place to mention the extensive

HIS EXCELLENCY CHOW CHANG-LING (C. L. CHOW),

CUSTOMS TAOTAI AT NEWCHWANG. FOR A NUMBER OF YEARS HE ACTED AS DIRECTOR OF THE IMPERIAL RAILWAYS OF NORTH CHINA. EDUCATED IN AMERICA.

HIS EXCELLENCY CHOU SHU-MU,

GOVERNOR OF HEILUNGKIANG PROVINCE (TSITSIHAR); A NATIVE OF HUPEH PROVINCE; WAS COMMISSIONER OF EDUCATION OF KIANGSU PROVINCE IN MAY 1906; PROMOTED TO SENIOR SECRETARY TO GOV'T OF FENGTIEN PROVINCE IN MAY '07, AND TO HIS PRESENT RANK IN MARCH 1908.

repairs just completed upon the Imperial Palaces of Mukden. The present dynasty's Mukden Palace has been sorely neglected of late years with the result that many of the buildings and pavilions were in a state of collapse bordering on absolute ruin. As the date drew near for the observance of the ceremonies in connection with the filing away in the Ancestral Hall of the genealogical tablets of the Imperial family for the past decade, the Viceroy was instructed to undertake the renewing and repair of the entire Imperial Enclosure. The repairs have been very extensive and the various buildings and approaches have been restored to their former beauty and splendor without changing in the least the more ancient lines of architecture or ornamentation. It is estimated that approximately $200,000 have been required to accomplish this restoration.

"It is claimed that the Mukden Palace contains the rarest and most elaborate collection of Imperial porcelain and art treasures now extant. These magnificent works of art have for a great number of years been piled in together in a hopeless, junk-shop fashion, being exposed to the ravages of dust, moths, and the clumsy coolie keepers. Needless to state a great deal of it has been destroyed, or allowed to deteriorate. There are still, however, great buildings full of the choicest embroideries, paintings, carved jade ornaments, porcelains and bronzes, which under the new régime have been arranged in show-cases, on shelves, and in boxes, for the benefit of visitors and art students, for it is the Government's plan to make of the Palace a kind of museum for purposes of education and pleasure. The great quantities of rare treasures are to be systematically arranged and catalogued, thus affording the student a rare opportunity of seeing at first hand the finest specimens of China's fine arts."

Business Firms.—There are over one hundred large native firms which deal to a greater or less extent in foreign goods; twenty of these concerns have an estimated working capital of between fifteen and one hundred thousand taels. Two occidental firms, one German-Chinese, and the other Anglo-German, are represented by foreigners, and are engaged in the import and export business; the British American Tobacco Co. makes Mukden the headquarters for Manchuria, and they have just completed the erection of a new cigarette factory. The British firms Jardine, Matheson, and Butterfield and Swire, and the German firms Arnhold, Karberg and Co., Mandel and Co., Carlowitz and Co., and the German-Chinese firm Bielfeldt and Sun maintain Chinese agents under the supervision of foreign managers who from time to time tour this region. There are three or four reputable Japanese companies and a very large number of small dealers. The principal firm engaged in the Manchurian import and export business is the Mitsui Bussan Kaisha.

Japanese Population and Influence.—According to the best sources of information, the Japanese population of Mukden during the past two years has been steadily decreasing. At the end of October 1906 the total Japanese population of Mukden was 3517, at the end of last year it was 3282, while at the present time it is stated to be approximately 2,100. During the last two years, therefore, the number of Japanese residents in Mukden has fallen 3,517 to 2,100, a decrease of 1,417, or a little more than 40 per cent.

The cause of this decrease in the Japanese population is not difficult to ascertain. The major portion of those who swarmed into Manchuria at the close of the late war were petty tradesmen and soldiers of fortune, possessing but little money, and less experience and knowledge of foreign lands. As long as their Mikado's armies remained in Manchuria these so-called immigrants were able to eke out a

HIS EXCELLENCY LIANG JU-HAO,
(M. T. LIANG) YALE GRADUATE

Senior Councillor to the Viceroy of Manchuria, and Acting Governor of Fengtien, during absence of Tang-Shao-yi. A Native of Canton, destined to fill the highest official positions in the Empire. From Managing Director of I.R.N.C. he was promoted to the posts of Customs Taotai of Shanghai, and from there to the Waiwupu.

On the appointment of Tang Shao-yi to the Special Embassy to America, Liang as the strongest man for the difficult post was ordered to Mukden, to act as Councillor to the Viceroy. He still retains his office as Secretary of the Board of Foreign Affairs at Peking.

GENERAL WONG HUI CHENG,
COMMANDER OF THE MUKDEN TROOPS

fair livelihood, but with the withdrawal of the troops there went, also, the opportunity to make a living, for it is well known that the Japanese small trader can not subsist upon the profits derived from his Chinese customers. His customers are and must continue to be Japanese. And as there are as yet no large industries here affording employment to any large number

H. E. MUNG,

COMMISSIONER OF EDUCATION FOR FENGTIENG PROVINCE.

of Japanese, the business of Japanese petty tradespeople is inevitably doomed to failure, and their business gone, this class of immigrant must find his way back to his home-land.

Outside of one or two large firms such as Mitsui Bussan Kaisha, the most successful Japanese residents in Mukden are the barbers, confectioners, dentists, and brothel-keepers. And as these classes also depend upon the patronage of their own nationals such as railway police, railway employees, etc., for their existence, it is evident that the Japanese of Mukden have made no serious impression on the trade of the city.

The conditions thus outlined in Mukden prevail also, in other sections of Manchuria, but not, perhaps, in such a marked degree. At Liaoyang, Tiehling, and Kwanchengtzu, the Japanese immigrant has found apparently more congenial fields for his activities, but even in those cities he finds it difficult to obtain a legitimate foothold. He finds in Manchuria a race of people inured by nativity to the rigors of severe winters and sweltering summers—a people satisfied with a low scale of wages and a low standard of living—a people with little, comparatively, to sell and who buy less, and moreover a people in actual possession of the land. When, therefore, a Japanese immigrant drops off the very modern and comfortable railway train in the heart of Manchuria, he finds himself at once surrounded by these sturdy natives with their poverty and squalor, with whom he must enter into a competition for a livelihood that is next to impossible to overcome. Instead of the rich El Dorado so glibly talked of in Japan, he finds but a very limited number of enterprises open to him, and that it requires a much greater effort to obtain the bare necessities of existence in Manchuria than it did at home. The Japanese also finds that he is an unwelcome interloper among these Manchurian natives, so that he is not only a stranger in a strange land but a stranger among enemies, but from whom he must in one way or another win a livelihood. The result of these conditions, in a majority of cases, is that he soon tires of the struggle and betakes himself back to Japan having become a wiser, if not a wealthier, man.

It is this phase of the immigration and colonization question which at present is causing the Japanese Government anxiety. Japan looked upon the broad plains and fertile valleys of Manchuria as offering the most suitable and accessible region in the world for settlement and exploitation of its people and for the expansion of Japanese civilization and influence.

Frederick D. Cloud, the American Vice-Consul in Charge at Mukden since the departure of Williard D. Straight for the United States, has made some interesting reports on the situation there which throw a different light on the many perplexing questions, than those

THE HON. CHU KIN-HOU,

DIRECTOR OF MINING BUREAU OF FENGTIEN PROVINCE. EDUCATED AT NEW BEDFORD, MASS., AND POUGHKEEPSIE, N. Y.

commonly accepted. Consul Cloud's ideas are in line with those of the writer, and the following extract from one of his latest reports sums up the situation in a nutshell.

"Of late the world has heard much about Japanese preponderance in Manchuria, both political and commercial, how they were making of this land of the Manchu a 'Little Japan' where each and every subject of the Mikado found a fortune, but where the luckless white man who formerly reaped rich harvests, or who came here expecting to reap rich harvests from the sale of his wares, was being maltreated and hounded out of business; that the Japanese were the only people who could exercise their rights in Manchuria and that the process of Japanizing the whole of southern Manchuria was progressing so rapidly and so successfully that no other foreigners were able to stand against them or succeed in any kind of commercial enterprises.

"The subject, stripped of all sentimentalism, as should be done in justice to Japan, offers but little or nothing that should in any way be alarming either to Americans or Europeans. Aside from the Japanese railway, together whit its subsidiary concerns, which came to the Japanese as a present from Russia, the Japanese at present have but little commercial influence in Manchuria, and even that influence has a tendency to grow less as the Chinese recover from the overshadowing effects of the Japanese military occupation and return to their normal trade activities. The foreign merchant has never before had such golden opportunities for legitimate and profitable trade in Manchuria as he has at the present time, and if he will only take the trouble to study the people and their needs, and then set about in earnest to supply those needs, he will be able in a few years to build up a magnificent trade in Manchuria."

Electric Lighting.—An electric light plant is being installed in Mukden by the local Chinese Government. The disused copper coin mint is being converted into a power house and current is promised for general consumption at an early date. The engines and dynamos, as well as the electric supplies, have been ordered from Germany.

The South Manchuria Railway has a small plant in its railway concession for lighting the switch yards, station, and guards' quarters, but according to agreement has no right to extend its lines beyond the limits of its own concession, or to supply current to the general public. Nevertheless, it has recently extended its wires across the regular commercial settlement and into the walled city, a distance of fully two miles beyond the boundary of its concession, for the purpose of supplying the general public with electricity. The fact that such action on the part of the Japanese is contrary to signed agreement, seems not to have made the slightest difference to the railway's management. They learned that the Chinese Government contemplated installing a public service plant and

THE HON. WONG KAI-WEN,

COMMISSIONER OF AGRICULTURE, COMMERCE AND INDUSTRIES OF THE MANCHURIAN GOVERNMENT. EDUCATED IN AMERICA.

forthwith extended their system into the Chinese city without so much as asking for Chinese official sanction.

The Chinese authorities are greatly annoyed over the matter and the Viceroy is preparing to lodge a strong protest with the Japanese Government. The matter will probably end by the South Manchuria Railway receiving payment from the local Government for the lines thus constructed.

Police and Military Organizations of Manchuria

Police.—Efficient, well-drilled, well-armed, and active police forces have been organized at all the larger cities of the province. The men carry rifles or heavy sticks, their uniforms are neat and serviceable, black in winter and khaki for summer wear. They are well housed

H. E. TAO TA-CHUN,

COMMISSIONER FOR FOREIGN AFFAIRS, MUKDEN

For many years employed in Chinese Legation at Tokio, then appointed Japanese interpreter to the Board of Foreign Affairs at Peking; Councillor of Board of Commerce 1904, and at present post August 1907.

and well paid, and at some places foreign instructors have been engaged to drill the recruits. At Tatungkou there are fifty men with two instructors who give daily lectures, in Japanese, on the history of Police Administration and Organization, etc. Temples are used to house the rural police.

There are both mounted and unmounted forces, and at Mukden particularly they have been active in their efforts to suppress the petty robberies and disorder which have been the natural consequences of the disturbed conditions of the past few years. The depredations of the "Hunghutzu," mounted bandits, who have for years terrorized the rural districts, have been largely restricted and numerous captures and executions have exercised a most salutary effect.

This applies specially to the great town of Harbin. For the last three years the Russian officials have been powerless to properly protect life and property and as a natural consequence crime and disorder prevailed. It was worth a man's life to go abroad after nightfall and everyone carried some firearms for protection.

For a long while it was impossible to send a telegram after sundown, as no one would risk his life for love or money to travel the four miles to the Imperial Telegraph Office in the Chinese city.

The so called Russian authorities made no effort to maintain efficient police protection. The absence from the street of uniformed police gave opportunity for murder, highway robbery abduction and all the gamut of crime. The Railway guards, who are supposed to do the police work of Harbin, are noticeable by their absence, and if an honest citizen had occasion to go out after dark, he went fully armed, and prepared to shoot at the slightest provocation. The "Hung Hutzu" or Red Beard bandits became so daring and reckless that they entered the town at will, committed their depredation, and decamped with their spoil.

Affairs went from bad to worse, until the arrival of the new Customs Taotai of Harbin in the early spring of 1908. The Chinese authority had been vested in a mandarin of the old, conservative type, heavy and slow of action and lacking stamina and initiative. The new official, a protege of Tang Shao Yi, was a young energetic American educated

THE HON. CHANG YUAN-CHI,

COMMISSIONER OF CIVIL OR INTERNAL AFFAIRS TO THE FENGTIEN GOVERNMENT

A native of Fukien Province and Metropolitan Graduate of 1886, who has attracted the attention of the higher authorities by his ability, and his rapid promotion is assured.

official, graduate of Cornell 1901, who had previously held the high position of Director of the Imperial Railways of North China. His experience in the United States and contact with American youths, participation in football, base-ball, and other athletic sports, imbued him with strong aggressive tendencies and a determination to accomplish things. Fresh from college, at 31 years of age, he was appointed to one of the most difficult tasks in the Empire, a position requiring great tact and diplomacy and strength of character to checkmate Russian pretensions in Harbin, and regain China's list hold on Northern Manchuria.

The old school Chinese officials shook their heads and predicted failure for the new foreign educated official. They stood aloof and let him have his swing as the surest way of bringing about his speedy downfall. His Excellency Shih Shao Chi or Alfred Sze, as he is more familiarly known to his intimates, nothing daunted set about to reorganize his department, and one of his first steps was to strengthen his police force, and clean up the native town. He increased the efficiency and morale of his troops, and the lawless element were rapidly forced to change their base of operations to a more secure quarter.

The Russians made no attempt to second or co-operate with him to safeguard life and property in their settlement, and finding that the gangs were making their headquarters in a part of the town under Russian jurisdiction, Taotai Sze acted upon the terms of the treaty which authorized China to provide adequate police protection, and advised the Russian authorities that if they could not protect the town, he could and would.

A few nights afterwards some Hunghutzus entered the Russian town, and Sze sent his own police after them. There was a running fight in the street of Pristan for over two hours, several of the bandits being killed and three captured. Again in another week the Chinese police went into the Russian town and had a long chase after the bandits. On this occasion the Russian railway guards joined in the pursuit leading the rear guard and fired at the bandits over the heads of the Chinese police.

The Hunghutzus came back in a few days and boldly abducted the prize beauty of the leading tea house in Chinese Harbin, and held her in $2,000 ransom. She advised the payment of the money, which was followed out. His spies followed the receiver of the money and located the rendezvous. That night as the gang was dividing the spoils, his men burst in on them. A fierce fight ensued, and at the end, of the eight bandits, five were dead, two taken prisoners, and one escaped.

All this occurred in the months of November and December. The 27 days of mourning for the deaths of the Emperor and Empress Dowager were being observed, and during this time no one can be executed in China. But on the dawn of the day after the expiration of

THE HON. EN-CHIH,

COMMISSIONER OF MANCHU OR BANNER AFFAIRS, FOR MANCHURIA. A MANCHU. APPOINTED AUGUST, 1907.

these days of grace, on the banks of the ice-bound Sungari, the dripping heads of several of the most desperate bandits of northern Manchuria could be seen decorating the tops of long poles, as a reminder and warning that the new Taotai mean business.

Harbin is now a law abiding town, and people venture forth at night without fear of being murdered or robbed. The American educated official has proved the value of his training.

Military.—Steps have been taken to reorganize the provincial army, and the men, about 10,000, located in and about Mukden,

are admirably trained and armed generally with modern rifles purchased from the Japanese. A number of foreign military instructors are employed.

The head of the Provincial Army of Fengtian is H. E. Chang Hsi Luan, with Gen. Wang-Wei-Ching as Chief of Staff and Adjutant General

THE HON. CHANG HSI LUAN,

COMMISSIONER OF REVENUE, FENGTIEN PROVINCE (TREASURER), PROMOTED FROM TAOTAI OF THE EASTERN MARCHES (FENGHUANG CHENG) TO PRESENT POST IN AUGUST 1907. A NATIVE OF CHEKIANG PROVINCE.

to the Viceroy. H. E. Gen. Nang Kung holds a position similar to the Military Secretary. The standing army of the province is commanded by General Tuan Chi-Hsuan, and he has a Military Advisor in the person of Gen. Kuan Yun Chung. The military school at Mukden trains officers for the new army and is under command of Gen. Yueh Kai Siu.

The soldiers are drilled daily, and present a good front and appearance. As no maneuvers have taken place in Manchuria, it is too early to pass judgment on their efficiency in marching and general training.

The following list of the forces in Manchuria is official, and is the first information of the kind ever made public by the Chinese Government:

Chinese Military Forces of the Three Eastern Provinces.—The following is a summary of the units of the armies stationed in the Provinces of Fengtien, Kirin, and Heilungchiang:—

FENGTIEN.

New Army.

	Men.
1st Hsieh	1,500
2nd Hsieh	1,500
7th Hsieh	1,500
1st Piao	3,000
2nd Piao	3,000
	10,500

Old Army.

The centre of the army, 5 Ying	2,500
The front of the army, 5 Ying	2,500
The left wing of the army, 5 Ying	2,500
The right wing of the army, 5 Ying	2,500
The rear wing of the army, 5 Ying	2,500
	12,500

KIRIN.

New Army.

	Men.
3rd Chun	10,000
1st Chun	10,000
One Hsieh	1,500
	21,500

Old Army.

The centre of the army, 5 Ying	2,500
The front of the army, 5 Ying	2,500
The left of the army, 5 Ying	2,500
The right of the army, 5 Ying	2,500
The rear of the army, 5 Ying	2,500
	12,500

THE HON. TENG CHIA TSUN,

POLICE COMMISSIONER, MUKDEN.

HEILUNGCHIANG.

New Army.

	Men.
Infantry, 1 Hsieh	1,500
Cavalry, 1 Hsieh	1,500
	3,000

Old Army.

The front of the army, 5 Ying	2,500
The left of the army, 5 Ying	2,500
The right of the army, 5 Ying	2,500
The rear of the army, 5 Ying	2,500
	10,000

NOTE 1.—The units mentioned in this list include only those of the New and the Old Armies.

NOTE 2.—The New Army includes Infantry, Cavalry, Artillery, Engineers and Commissary.

NOTE 3.—The Old Army or Garrison Troops include infantry and cavalry.

NOTE: 1 Ying = 500 soldiers.
3 Ying = 1 Hsieh or 1,500 soldiers.
6 Ying = 1 Piao or 3,000 soldiers.
20 Ying = 1 Chun or 10,000 soldiers.

RECAPITULATION.

Fengtien	New Army	10,500	
	Old Army	12,500	
			23,000
Kirin	New Army	21,500	
	Old Army	12,500	
			34,000
Heilungchiang	New Army	3,000	
	Old Army	10,000	
			13,000
Total			70,000

It will be seen from this that the army of Manchuria alone is larger numerically than the standing army of America. The old army or the Manchu Bannerman are largely reservists, and are not all on active duty. The new army of 35,000 is, however, very much in evidence in the various towns of the provinces, with their foreign style uniforms and equipment.

POSTS AND TELEGRAPHS

Telegraphs.—Upon the occupation of Manchuria by the Japanese armies during the late war, Japanese military telegraph lines were constructed in great numbers and in almost every direction. Every important city and

THE HON. KEY TSU YI,

EDUCATED IN AMERICA, YALE, 1883, AS CIVIL AND MECHANICAL ENGINEER. PURCHASED THE MACHINERY AND INSTALLED THE STEEL PLANT IN KWEICHOW PROVINCE, AND ACTED AS ITS MANAGER FOR A NUMBER OF YEARS.

Also purchased and erected the arsenal and mint in Chengtafu, capital of Szechuan Province. Was appointed Customs Taotai of Antung, and at present Acting vice Commissioner to the Manchurian Bureau of Foreign Affairs.

village were put into quick communication with each other. These lines at first were of a temporary nature but were rapidly made permanent as the Japanese position in Manchuria grew stronger, until the close of the war witness-

ed an elaborate system of telegraphs throughout southern Manchuria under the exclusive control of the Japanese Government. Upon the withdrawal, however, of the Japanese armies from Manchuria and in view of Japan's avowed adherence to the open door policy, together with her treaty engagements with China, the excuse and the right for maintaining a system of military telegraphs in Manchuria no longer existed. For some three years, therefore, the Chinese Government objected to the continued operation of these lines by the Japanese, and endeavored to conclude with Japan some satisfactory arrangement of the matter in harmony with the latter's promises and agreements. It was obvious to the most uninitiated that Japan had no right whatsoever to convert her military lines into commercial telegraphs, as she did, in competition with the Chinese Government's system, without in some way making an adequate return to the Chinese Government.

An agreement has been reached in this connection between the two Governments upon the following basis, To wit:

"1. The submarine telegraph cable between Kwantung (Port Arthur territory) and Chefoo shall be divided between the two countries, the section from Kwantung province to a point 7½ miles from the shore at Chefoo being held by Japan and the section beyond that point by China.

"2. China shall construct a telegraph line from the landing point of the submarine cable to the Japanese Postoffice at Chefoo, and the Japanese postoffice at Chefoo shall deal with messages in 'Kana' characters for the convenience of Japanese.

"3. Those telegraph lines constructed in Manchuria during the Russo-Japanese war remaining outside the railway boundary shall be purchased by China for Yen 50,000 ($25,000),* but even after the purchase of such lines, a Japanese staff shall, for the convenience of Japanese residents in the open cities of Manchuria, be authorized to deal with messages in Japanese under a special arrangement.

"4. Minor regulations are to be arranged on the basis above stated."

From the foregoing it will be seen that although China pays Japan Yen 50,000 for the telegraph lines outside the railway boundaries, the Japanese Government will still retain virtual control of them. The Japanese staff provided for in the arrangement will control the operation of the lines and will be subject not to the owners —the Chinese Government—but to the orders of the Japanese Government. It is difficult to understand how such an arrangement can prove satisfactory to the Chinese Government. China's object in paying Japan Yen 50,000 was to obtain control of the lines, whereas, according to the above arrangement, she makes a present of Yen 50,000 to the Japanese Government for which she gets practically nothing in return. The entire system in Manchuria is at the service of the Japanese Government for military purposes at a moment's notice.

All offices of the Imperial Chinese Telegraphs accept English messages. They are as follows:

Shengking Province.—Chinchou, Changtu, Fakumen, Yichou, Kungchuling, Yingkou (Newchwang), Mukden, Hsinmintun, Tiehling, and Tungchiangtzu.

Kirin Province.—Changchun (Kuangchengtzu), Hunchun†, Yitungchou, Kirin, Ningutat†, Petuna† and Harbin.

Heilungchiang Province.—Aigun†, Mergen†, Helampo†, and Tsitsihar†.

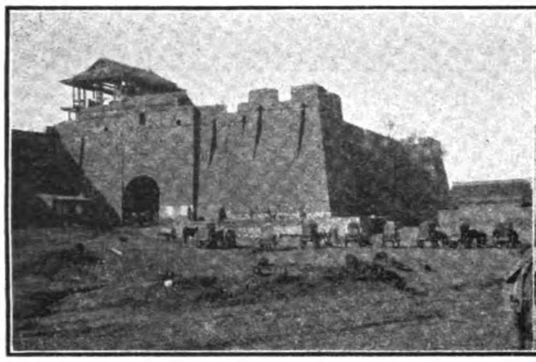
*This is the amount given by the Viceroy's Chief Secretary, yet the Shanghai papers state the amount paid as being Yen 120,000 ($60,000).

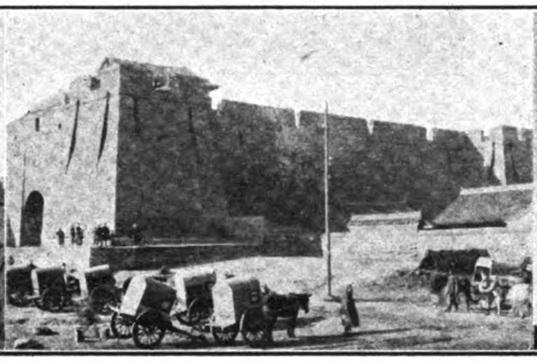
†Transferred by Russia.

In addition to the above systems, the Russian authorities have installed wireless telegraphy stations at Harbin, Tsitsihar, and Manchuli. This system obviates using the land wires turned over to China, for military purposes. The station at Harbin is probably the largest in the Orient, having four large receiving poles, and sending plant.

Posts.—A special department of the Chinese Imperial Posts has been created for Manchuria. From Mukden the Chief Postal Commissioner directs a foreign staff and supervises the work of the offices, whose number it is expected will be increased to about one hundred and fifty located throughout the Three Eastern Provinces. Some difficulty was at first experienced in establishing communications between the various portions of Manchuria on account of the lack of a thorough understanding between the different railway authorities. It was necessary for some time to utilize the Japanese postal machinery in the transmission of Chinese mail matter which resulted in frequent misunderstandings. Arrangements have since been made to insure the delivery by the Chinese Post Office in southern Manchuria of mail by the Trans-Siberian Railway, and it is now possible to forward through the Chinese Post to its Harbin Office letters addressed to Europe or America.

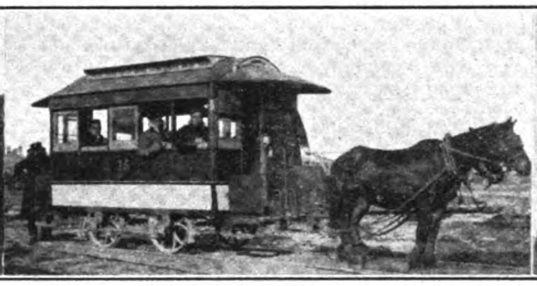
Between the inland cities not located on the Railway lines, courier services have been inaugurated, and although the native postal *hongs* which have in the past served the Chinese public, still continue, the business of the Government offices is rapidly increasing. The Mukden office alone sells about $5,000.00 worth of stamps per month and issues considerable money orders. The business of this office has so greatly increased, it has been necessary to open branch offices throughout the city.

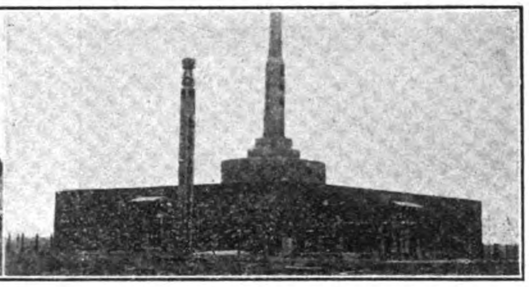

MUKDEN GATE


ANOTHER GATE OF MUKDEN

LAMA PAGODA, MUKDEN

NEW GATE AT OUTER WALL, MUKDEN


MUKDEN HORSE CAR LINE FROM MAIN GATE TO RAILWAY DEPOT


JAPANESE MONUMENT ON MUKDEN BATTLEFIELD

Japanese post offices are established in the southern Manchurian cities along their railway lines and Russian post office function from Kuangchengtzu northward, at the principal cities.

During the progress of the war the service inaugurated by the Chinese Posts was in many instances suspended, and it has only been within the past year that new offices have been opened and old ones re-established. A number which had been installed before the war are still non-existent, but the new administration contemplates a rapid development.

So called "linguist" clerks are located at all places of importance and letters addressed in English are delivered without delay.

Foreign postal officers are stationed at Yingkou (Newchwang), Mukden, and Harbin.

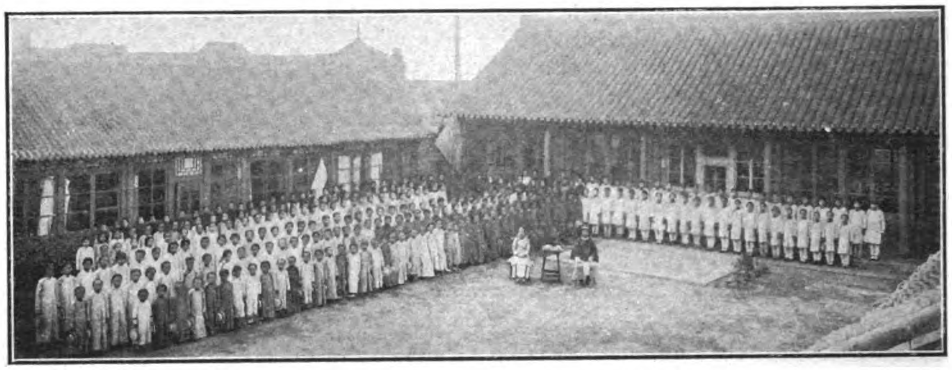
SYSTEM OF TAXATION

Taxation.—The provincial system of revenue collection has been simplified and revised under the new régime. A number of duties were abolished and two taxes, a 1 or 1½% "production" and a 2½% "consumption" tax, substituted therefor. An official charge of 5.3 % on the value of property is made for the registration of the transfer thereof and a fee of one Tael is charged for issuing a deed. In addition to the taxes above named, there is a land tax of

ENTRANCE TO GOVERNMENT HOUSE, MUKDEN. THE NEW FOREIGN STYLE YAMEN OF THE VICEROY AND THE GOVERNOR OF FENGTIEN.

less than $.50 (gold) per acre per annum, the Salt Monopoly and the opium, tobacco, wine, animal, and cart taxes, which although they amount to less, considered as a whole, than the levies imposed elsewhere in China are nevertheless claimed to be more than the people can afford to pay. Indications are not lacking however, that the abuse of their positions by the tax collectors has been responsible, rather than the excessive amounts legally charged, for, the difficulties that have arisen in the past.

Custom Houses have been established at the newly opened ports and the details of the system of collection are less complicated than those in force elsewhere in China. A chief commissioner has been appointed for Mukden with other commissioners of customs subordinate to him located at Antung, Dalny ,Harbin, and Kirin. Regulations to govern the trade between these inland marts and the traffic in foreign and native goods between these places and foreign countries and other parts of China have been drawn up but have not as yet been placed in operation



CHINESE PRIMARY SCHOOL AT MUKDEN.

Revenue.—The archives of the Provincial Treasury of Shengking were destroyed during the Boxer outbreak of 1900, and owing to the conditions prevailing since no accurate record has been preserved of either collections or disbursements. The local officials state that prior to 1904 the revenue probably never exceeded Taels 1,200,000 per annum. Under the administration of Chao Erh Sun, however, the collections between the Seventh Moon of the 31st and the end of the Sixth Moon of the 32nd year of Kuanghsu (August 1905-August 1906) were given as follows:

	Tax.	*Amount collected.* Taels.
1.	Weight and Measure Tax....	913,490.00
2.	Likin....................	329,098.00
3.	Taxes in Eastern Marches....	359,260.00
4.	Timber Tax..............	43,256.00
5.	River Transport Grain Tax..	29,931.00
6.	Grain Speculation Tax......	71,516.00
7.	Newchwang 8 per Mille Tax..	146,541.00
8.	Tobacco Tax.............	67,281.00
9.	Wine tax................	345,901.00
10.	Opium and Opium Land Tax.	310,608.00
11.	Salt Monopoly...........	1,183,591.00
12.	Boat Tax................	15,270.00
	Total.....................	3,805,653.00

The land tax is stated to amount to 38,708.00 taels annually.

It was estimated under the last Viceroy that the provincial taxes, duties, imposts, and excises, if honestly accounted for, would yield approximately 10,000,000 taels per annum.

The authorities at Mukden, while preserving secrecy as to the details of the revenues collected, state that under the more honest administration of Hsu Shih Chang, the total income for the last year 1908 was about Taels 15,000,000.

The disbursements for the year 1906 including considerable expenditure for public works, education, and military equipment as well as the outlay attendant upon the inauguration of new administrative departments, were estimated at 4,000,000 taels, special appropriations having been made by the Central Government to supplement the inadequate provincial collections.

While the revenue has been greatly increased under the present administration, the budget has grown in proportion, especially for the maintenance of the new army and the great expenditure for new roads, public works, etc. One of the largest revenue producers is the salt monopoly.

Salt.—There are seven salt marshes in the coast region of Shenking, located at Kai Ping Hsien, Fu Chow, Chuang Ho Ting, Ning Yuan Chow, Chien Chow, Kwang Ning Chow, and Pan Shan Chow. Each place has a sub-bureau controlled by the Salt Provincial Department in Mukden.

The tax on salt is regulated as follows:

. Every picul of salt is reckoned by standard weight as 600 (800 lbs.) catties. On account of the intricate currency system the salt tax is collected according to the daily rate of exchange of the place where it is sold. For instance, twenty-three tiao and 400 cash might be levied on every picul of salt at one time, while at another date four dollars forty, fifty, or sixty cents might be levied. Formerly the yearly consumption of salt was about 200,000 to 300,000 piculs. The number of police and the establishment of bureaus in all important places to prevent the smuggling, having been greatly increased, the yearly consumption has reached 500,000 piculs. Any one found selling salt without license issued by the Salt Department, is punished according to the regulations. Formerly the salt trade in the province of Kirin and Heilungchiang was controlled by merchants and under this arrangement the greater portion was smuggled in without paying taxes. From the beginning of 1907 salt has been a monopoly of the Mukden Government and the tax paid accordingly. Kirin province undertakes to sell 200,000 piculs yearly, and Heilungchiang province 100,000 piculs. If the whole amount cannot be consumed in one year, the rest is left for sale in the following year.

The salt monopoly has not escaped the notice of the Japanese in the leased territory, and their attitude at one time threatened to become an international question between the two countries.

Two hundred thousand *koku* of salt are produced in the Liaotung Peninsula, yearly, and the chief market is the adjoining Chinese territory. It would plainly have been inconsistent with the principle of monopoly that the product of Kwantung should have free access to Manchurian markets. The Mukden authorities proposed to levy a tax of 4.50 *yen* per *koku*. To this the Japanese objected, and after considerable negotiation a deadlock was reached from which no exit seemed imminent. The Chinese authorities then proposed to purchase at 3 *yen* a *koku* all the salt produced in the leased territory, and the Japanese producers were willing to agree to this arrangement provided that they did not pay the cost of packing the salt, estimated at 50 *sen* a *koku*.

MANCHURIA'S EDUCATIONAL SYSTEM

Education.—During his term of office the Viceroy has followed the good example set by his predecessor and has done much to encourage education. Substantial brick buildings have been erected at Mukden to house teachers and scholars, and to give adequate accommodation for instruction, and temples throughout the rural districts, where they have not been converted into stations for the local police are utilized as primary schools. The officials have taken a keen interest in the progress of the work, visiting the institutions which have been opened and in addresses urging the scholars to devote themselves to the pursuit of their studies.

As a result of the late war the conditions prevailing throughout Manchuria have been far from normal. It is undoubtedly true, however, that one of the consequences of this struggle has been to impress upon the people, generally, the necessity for augmenting their own national strength, and this fact has been repeatedly emphasized by the officials and the native press which has a large circulation in Mukden.

The Chinese youths are interested in their work and all reports confirm their sincerity and desire to benefit by the "new learning." The growth of the educational movement has been so rapid throughout the Empire, however, that the demand for instructors has far exceeded the supply of competent men, with the result that in Manchuria, while there are undoubtedly a number of excellent teachers, the majority are remarkable for their energy rather than their erudition.

It is but natural that up to the present more time has been spent in inaugurating the new system and in installing the schools in suitable buildings than in perfecting the curriculum, while the new caps and uniforms and the novelty of the physical exercise, military drill, and patriotic songs may be responsible for much of the enthusiasm at present evinced by the scholars and may influence the minds of these youths in a manner quite out of proportion to their real value.

Although there are very few Japanese employed in educational work in Manchuria (agricultural college not included) a number of the Chinese instructors have received their training in Japan, and the methods of instruction, the physical exercise, marching, songs and uniforms are modeled on Japanese lines.

It is too early to anticipate with any degree of assurance the consequences of this movement, but it is safe to say that any such manifest quickening of the popular mind indicates process of transformation which will profoundly affect the nation.

The following are the names and number of students of the different schools in Mukden:

One Normal School (Collegiate Dept.)	301
One Normal Shorter Course School	70
One Normal School Preparatory Department	93
One Gymnastic School	58
One Scientific School	57
One Polytechnic School	114
One Middle School	176
Eleven Manchurian Schools	1473
One Mongolian School	40
One Bannerman Primary School	80
Two Chinese Banner Force Primary Schools	152
One Imperial Household Primary School	80
One Yu Ying School (Progressive School)	70
One Charity School	52
One Monkish Established School	40
One Industrial School	56
Five Primary Model Schools	498
One Girls Normal School	76
Three Girls Primary Normal School	312
One Girls Art School	90
One Infant School	90
The total average number of students	3978

In addition to the above there are 169 primary schools established in the different districts of Mukden and the average number of students of the above schools is 5388; one-third of these schools being established by the Government while the rest of them by the community.

In Liao Yang Chow there are 91 primary schools, one-tenth of which were erected by the Government, while the others are public schools and the average of students of these schools is 3972.

The courses are for five years in the schools of the second, and four years in those of the first grade. The average age is seven to fourteen years. A nominal tuition of from twenty to thirty cents per month is collected.

In four middle schools there are 396 pupils aged between fifteen and twenty-one years. In a four-year course they are instructed in English, in addition to the Chinese classics, grammar, history, geography, science, and mathematics commenced in the primary schools. Five taels per month is collected from each student.

There are twenty-six normal schools throughout the province of Shenking with 1,536 pupils between twenty-one and thirty years. In these institutions the Government supplies food and lodging as well as text books.

There are four girls' schools, one of them a normal school, in Mukden, with 351 pupils.

Special schools, of Law, Engineering, Municipal Administration, Languages for Mongols, an Industrial school, Manual Training school, Gymnasium, Teacher's Training school, Kindergarten and school for the study of phonetic Chinese as well as a Military school, have been established in Mukden.

Law School.—The Law School in the City of Mukden is located between the two Western gates. It is a large brick two-story structure with three wings, containing about 200 rooms, sub-divided into many sections, one large lecturing hall accommodating 120 students, and 4 smaller halls for 60 students each. There are 388 attending students, divided into 5 classes. Of the 13 professors, two are Japanese the rest Chinese educated in Japan. His Excellency M. T. Liang, the Senior Chancellor, is the head director assisted by Taotai Pang Ko-sun. The school hours are from 9 a. m to 5 p. m. Students are selected from officials and citizens who are already well educated in Chinese, the object being to train men in Chinese. Foreign and International Law, to fit them for future Government positions. No foreign language is taught, all text books being translated from both European and Japanese.

OFFICERS OF THE MANCHURIAN FOREIGN DRILLED ARMY

COMMUNICATIONS

Railways.—Manchuria is divided into three spheres, one served by the Imperial Railways of North China, and another, which enlarges as it extends northward into Kirin province, by the South Manchurian Railway, and the northern country trbutary to the Chinese Eastern Railway.

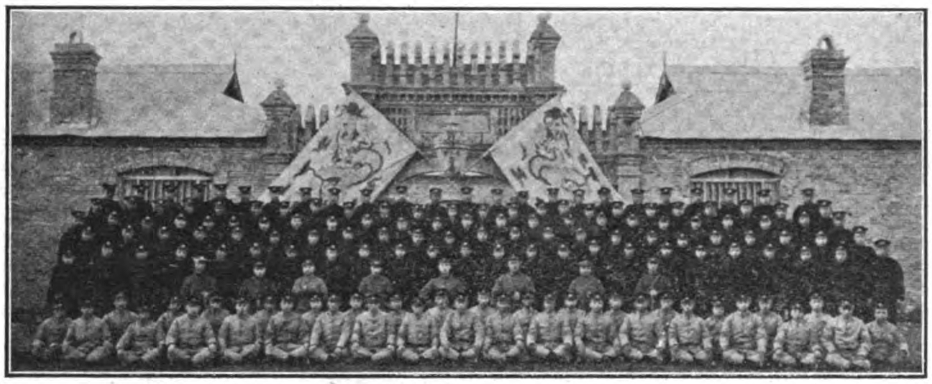
The former road taps the country west of the Liao river, connecting Newchwang and Hsinmintun as well as Mukden, the northern terminus of the road, with Chingwantao, an ice-free port, Tientsin, and Peking. A new line to the rich coal district at Hsinchiu about sixty miles northwest of Hsinmintun is projected, and the Throne sanctioned the extension of this railway from Hsinmintun via Tounanfu, a new city in eastern Mongolia, to Tsitsihar, and thence northward to Aigun on the Amur. The Fakumen Railway project, treated in another paper, which received the firm protest of Japan, has checked any further progress in this direction, pending the result of negotiations between the two powers.

The Mukden-Hsinmintun Railroad was acquired from the Japanese who had constructed

a rough line during the war. It was necessary to relay the tracks to standard gauge, and bridge the Liao river near Hsinmintun. The transfer agreement specified that the Chief Accountant and Engineer of this road should be Japanese, while the regular management of the North China Railways will operate it.

A twenty-four hour service has been inaugurated between Mukden and Peking.

The main line of the South Manchurian Railway, transferred to the Japanese by the Russians by the Treaty of Portsmouth, connects Kuangchengtzu and Dalny. There are branch lines from Tashihchiao to Newchwang, to Port Arthur, to the Yentai and Fushun coal mines and between Mukden and Antung. The railway was transferred to the civilian company by the military authorities who had been responsible for its operation since it was acquired during the war, on the first of April 1907. The gauge is now standard on the main line and branches, except the Antung road which is 2′ 6″. Two years will be required to relay the Antung line and it is not improbable that the route may be changed, the northern terminus being either Liaoyang or Kirin rather than Mukden.



SCHOOL OF ENGINEERING, MUKDEN

POLICE SCHOOL, MUKDEN

A satisfactory understanding has recently been reached with the Russians regarding the connection between the Chinese Eastern and South Manchurian Lines at Kuangchengtzu. The Japanese, however, contemplate moving the terminal station to a point north of the city of Kuangchengtzu in order to connect with the proposed line to Kirin, in whose construction they are interested.

It has also been proposed to build a railway from Hailungcheng, a point ninety miles to the east of the South Manchurian line, and located in the center of valuable coal fields, to Kaiyuan, the main station between Kuangchengtzu and Tiehling.

The future extension of the Imperial Chinese Railways north from Hsinmintun will open a new route by which the beans and bean products of western Manchuria and Eastern Mongolia may be transported to the sea coast. The effect of this competing line on the course of trade may be considerably modified by the fact that Japan is the principal purchaser of beans and bean products, which form the staple export of Manchuria and it will be but natural, therefore, that the bulk of the trade will be borne by the Japanese Railway, while the new line will be forced to meet the competition of both carts and river transport for the carriage of that portion of the annual output destined for South China.

It will be impossible, until the Japanese Railway is fully equipped to handle the great amount of freight to accurately gauge the effect which the competition of the carts, until now the principal winter carriers, will have upon the railway receipts. These vehicles may be secured for from $2.50 to $3.00 (small coin) per day for a four to seven animal cart capable of hauling two tons thirty miles a day over the hard winter roads. The South Manchurian Railway has up to the present time charged five sen per ton per mile, which, since the carters' charges are made in small silver, is in excess of the cart tariff. This difference may, moreover, be augmented to the advantage of the carter as his draught animals are used in the fields during the spring and autumn and must therefore be given winter employment if only at a rate calculated to cover the cost of maintenance, and prices therefore might be lowered to such an extent that the railway would not be able to meet the competition except where time was a factor, which it has not been in the past, of considerable importance to the shipper.

The main cart roads run north from Newchwang to Hsinmintun, Fakumen, Chengchiatun, Tounanfu and Tsitsihar Petuna and Hulan, from Newchwang to Liaoyang, Mukden, Tiehling, Kaiyuan and Kuangchengtzu, to Kirin, Ahsiho Ninguta and Sansing.

River Transport.—The Liao river is navigable as far as Tungchiangtzu about one hundred and fifty miles inland, and in the past there has been a very large river borne traffic practically non-existent since the war, fully ten thousand junks of from two to ten tons burden having been employed in the transport of beans and grain to the coast and of imports into the interior.

An attempt will probably be made in the near future to conserve this stream and the resultant increase in trade should be considerable. Located on, or not far from the Liao are the cities of Tiehling, Hsinmintun, and Fakumen.

The Taitzu and Hun rivers flowing past Liaoyang and Mukden respectively and the Ching river on which Kaiyuan is situated are navigable at certain seasons of the year but only for very shallow draught vessels, drawing from eleven to eighteen inches. The Hun and the Ching are both tributaries of the Liao, while the Taitzu joins the former stream not far from Liaoyang.

Freights are charged on the "piece," or every 160 lbs. at varying rates. Miscellaneous goods, drills, piece goods, cotton yarn, between Mukden and Newchwang being borne for 2.6, 3.8, 5.2, 7.8 *tiaos* respectively, or from 20 to 60 cents gold per piece. With the rivers in their present state deliveries are uncertain, and notwithstanding the difference in the cost of shipment the railway carries the bulk of the traffic not transported by cart.

CENTRAL MANCHURIA

Trade Conditions.—The cities of Changchun and Kirin, the two principal centers of trade in central Manchuria, were opened to international residence and commerce on January 14, 1907. Petuna and Ninguta, important commercial points more or less dependent upon the former two, are also to be opened. The markets of Central Manchuria have thus far remained largely undeveloped, due to the fact that, until the close of the recent war, it was so far removed from the nearest points at which foreign firms were permitted to locate, that it was impossible to acquire a clear knowledge of conditions affecting the market, or to exercise personal control over the distribution of their goods. The introduction of foreign articles was entirely in the hands of a few Chinese *hongs* at Changchun and Kirin, which imported from Newchwang and Vladivostok, and who conducted business in accordance with old conservative methods. Content with the small returns from their established trade, they felt little inducement for attempting the introduction of goods unknown to their buyers the successful disposition of which might be impossible.

The presence of the Russians occasioned some increase in the importation of foreign goods, but they made no effort to undertake the systematic and vigorous commercial campaign necessary to build up a market, and their influence on the trade of the region was relatively small.

Now, however, that the two emporia of Central Manchuria have been opened to foreign residence and trade and an effective commercial exploitation of this territory has become possible, it should form an important addition to the large and growing market for foreign goods in north China.

Population.—The population of Central Manchuria is about 3,000,000 and is gradually increasing through immigration from southern parts of the Empire. The number of people per square mile is smaller than almost anywhere else in China, and their standard of living, owing to their less crowded condition, is therefore comparatively high. The inhabitants belong almost entirely to the agricultural class, the urban element probably does not exceed 15 per cent.

Natural Resources.—A territory to be a good purchaser must be a good producer, a condition which Central Manchuria seems largely to meet. It is rich in agricultural, mineral, forestal, and animal resources. The valley of the Sungari running through it from south to north has often been called "the storehouse of the Three Eastern Provinces."

Agricultural.—The principal wealth of this region is agricultural. Its possible productive capacity, however, is yet far from having been reached, inasmuch as scarcely more than half of the arable land is at present under cultivation. In 1901 the Government, anxious to secure the development of the large tracts of fertile soil lying idle, undertook a scheme of colonization. A bureau was established to superintend the surveying of the land, its division into suitable farming plots, and its allotment to applicants; and the most favorable inducements to move to this region and engage in agriculture were offered to people living in the over-thickly inhabited parts of the Empire. This movement had but gained a fair headway when the Russo-Japanese war broke out and it had to be suspended. It is stated, however, that it will before long be resumed; and the productiveness of central Manchuria will in time show a considerable increase.

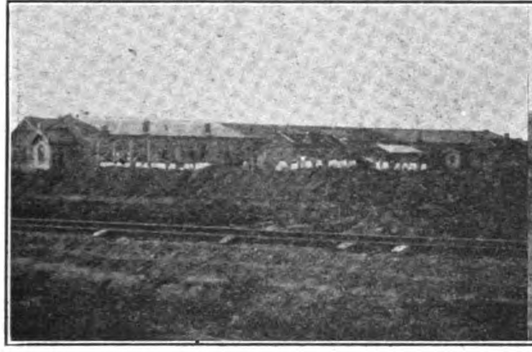
The most important products of this region are wheat, hemp, a species of indigo, opium and tobacco, for the first three of which it is the principal center of production in Manchuria. The tobacco grown there is superior in quality to that cultivated in other parts. Hemp ranks second and tobacco third, as regards bulk, among the articles of trade of Manchuria. While beans, which together with their manufactured products, oil and fertilizer (bean-cake), constitute the chief export of Manchuria, are grown principally in the southern part, yet the region dependent upon Changchun city enjoys a very profitable share of the entire output and Kirin is also the point of collection for considerable quantities of these articles. *Kaoliang*, a sorghum millet which forms the staple foodstuff of the natives, as well as barley, maize, and rice are also cultivated in large quantities.

Shaochiu, a native spirit, is extensively distilled from millet; and native wheat flour, which at present supplies almost the entire demand for that article in Central Manchuria, is ground in small horse-power mills.

Forestal.—The valley of the Sungari contains large and valuable forests of red pine, fir, larch, walnut, oak, and elm, which belong to the Government but are worked at liberty by private persons upon the payment of a small tax. The Russians received permission from the Chinese authorities during the construction of the China Eastern Railway to fell sufficient timber for the necessary sleepers; and despite the protests of the local officials they have continued since the completion of the line to prosecute the enterprise for commercial purposes and are at present negotiating for a monopoly of the timber industry of the valley of the Sungari.

The timber felled is used for various purposes, principally the construction of the two-wheeled carts and junks which form the chief means of transportation in Manchuria, of coffins, one of the important exports of the city of Kirin, and of articles of furniture and household utensils. A considerable amount has also lately been employed for sleepers intended for the proposed Changchun-Kirin Railway.

Wild ginseng, a leading export of Central Manchuria, is found in profitable quantities in the forests of the Sungari.



BARRACKS AT MUKDEN

OFFICERS' QUARTERS AT MUKDEN

MUKDEN HOSPITAL

CHINESE COMMERCIAL MUSEUM, MUKDEN

JAPANESE OFFICIAL BUILDING, MUKDEN

JAPANESE COMMERCIAL BUILDING, MUKDEN

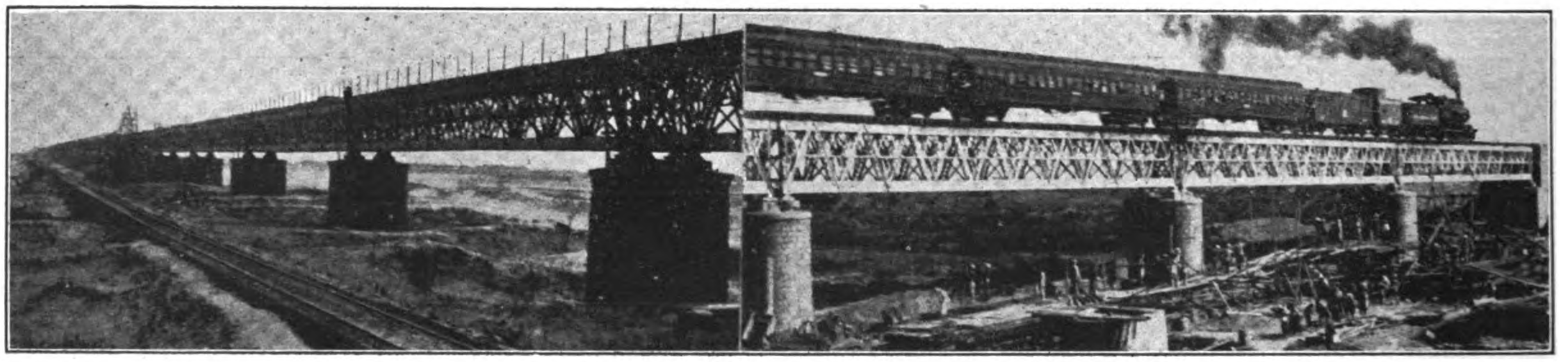
Mineral.—While it is impossible to make an exact statement regarding the mineral resources of Central Manchuria, they are believed to be of considerable extent and value. Their development has thus far been seriously retarded by the lack of transportation facilities, the danger of Chinese and Russian bandits, and the ineffectiveness of the methods employed.

ENTRANCE TO MINT AT MUKDEN

MUKDEN MISSIONARY HOSPITAL

PAVILION IN NEW PUBLIC PARK, MUKDEN

The kinds of minerals up to the present discovered in paying quantities are gold, silver, lead, copper, and coal. Coal exists in large amounts, some mines being operated by Russians near Changchun and others by the Chinese in the vicinity of Kirin, and the ready availability of this fuel should give an increased stimulus to the railway construction and manufacturing and industrial enterprises which are sure to be concurrent with the development of this region. Most of the mineral deposits are at present operated by private Chinese companies and a number by the government, while some are worked by officials and merchants in conjunction. There is no doubt that this, as other parts of Manchuria, will, as soon as the Chinese mining regulations have been revised and freed from their present restrictions, offer very favorable opportunities for the investment of foreign capital. (See List of Mines.)



TWO VIEWS OF THE NEW STEEL BRIDGE OVER THE HUN-HO, NEAR MUKDEN, ON THE SOUTH MANCHURIA RAILWAY

Animals.—Another important class of products of Central Manchuria consists of skins of both domestic and wild animals. Tigers and leopards are fairly numerous in the valley of the Sungari and their furs command high prices. The bones of the tiger and the young horns of the deer, both of which form an indispensable and greatly prized part of the Chinese pharmacopeia, are also important articles of trade of this region. Pig's bristles and horse hair are exported from both Changchun and Kirin. Owing to the large tracts of land available for pasturage, stock raising is carried on quite extensively in Central Manchuria and both live and dead stock are exported to the province of Shengking.

Centers and Routes of Trade.—Central Manchuria, as other parts, is traversed by a number of regular highways which link together the important towns and at present constitute the principal channels of trade. The cart-borne traffic, though largely confined to the winter season when the roads are frozen and easily traversible, still considerably exceeds that carried either by river or by rail. While the marts of this region carry on a more or less extensive business with Vladivostok and Dalny, by far the larger part of their trade is as yet done with Newchwang. The latter port is connected with Central Manchuria by a main road running to Kirin, whence it bifurcates to the northwest and the northeast, extending in the former direction through Petuna and Tsitsihar into the northern extremities of the province of Heilungchiang, and in the latter to Ninguta and places to the south thereof, in both cases with branches to the other important towns.

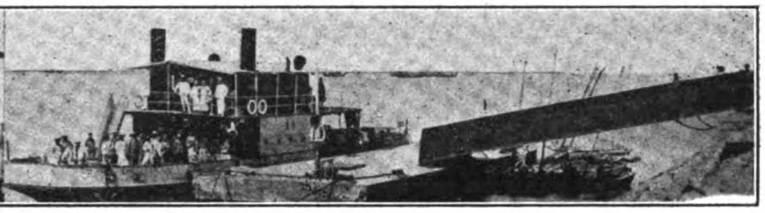
General Course of Trade.—During the period from November to March successive caravans of two-wheeled carts laden with local produce stream over these highways from all parts of the country into Changchun and Kirin, the two great emporia of Central Manchuria, and return thence with cargoes of flour, cottons, and other articles. From these two cities the native goods are in turn transported in the same manner to Newchwang, whence the carts come back loaded with quantities of imported wares. As spring approaches and the roads begin to thaw, the carts, instead of completing the journey to Newchwang, proceed to Tungchiangtze, the head of navigation on the Liao, or sometimes to points further south, whence the goods on the opening of the river are shipped by junk to that port.

While the foregoing describes the general course which the larger part of the trade of Central Manchuria at present follows, considerable cart traffic is also carried on directly between the smaller marts and Newchwang as well as intermediate points, a more or less extensive trade takes place over the winter highways with Harbin and Vladivostok, and fair amounts of goods are transported by rail to and from Dalny, Vladivostok, and Newchwang.

Railway Communication.—The South Manchurian Railway, extending from Dalny and Newchwang to Changchun, and the China Eastern Railway from Changchun to Harbin, where it unites with the Chinese Eastern main line passing east and west across the provinces of Heilungchiang and Kirin with its seaboard terminus at Vladivostok, furnish a system of rapid transit which, with a few more extensions, will provide easy access to all parts of the country. The construction of a line from Changchun to Kirin is at present under survey and will probably be realized within another two years, thus greatly stimulating the development of the rich valley of the upper Sungari. Furthermore, the extension of the Tientsin-Newchwang-Hsinmintun line by the Chinese, a plan whose undertaking as far as Fakumen is now a subject of discussion, to some point in Central Manchuria, as well as the construction of the proposed Tsitsihar-Aigun line, would help more adequately to meet the requirements of a region the extent of whose increasing resources permits of the profitable operation of more than one railway system and would create the healthy competition necessary to the maintenance of satisfactory service and moderate rates of transportation.

Competition between Railway and Cart.—Until the recent re-equipment of the So. Manchuria Ry. in shipping goods from Newchwang to Changchun, during the winter season, not only was cart transportation considerably cheaper and, on account of the less frequent necessity for re-loading the cargo, attended in the case of some goods by a smaller amount of damage, but, surprising as it may seem, it was in many cases just as rapid as, and sometimes even more so than, the railway, owing to the long delays caused on the latter through an insufficiency of cars with the result that the greater part of the traffic between those two points was carried on by cart. These conditions have ceased to exist, since the Railway has placed in operation the new rolling stock secured in America. The trade between Changchun and Dalny, which is rapidly increasing, is entirely by rail; while the business of Kirin, at present largely limited to Newchwang, is carried on almost wholly by cart over the highway between those two cities already described.

THE I.R.N.C. STATION, NEWCHWANG



NEWCHWANG FERRY BOAT LIAO TUNG CROSSING THE LIAO RIVER AT THE I.R.N.C. STATION

Outside the winter season, and especially during the months of July and August when the rains render the roads impassable, the railway, free from the competition of such a water-course as the Liao River forms in the province of Shengking, will necessarily handle the large part of the traffic occurring between Central Manchuria and the southern ports during that period.

In view of the great number of carts and animals in the province it is possible that the farmers, in view of the short time intervening between the harvesting of most of their crops and the cold season, will find it more profitable to postpone their exportation until the freezing of the roads render easy cart transportation possible than to commence immediate shipment by railway, and the merchants will also find it to their interest to import by cart during the winter the larger part of their stocks. The fact must also be borne in mind that, although most of the cart traffic occurs between the middle of November and the beginning of March, the roads are still traversable and a considerable amount of transportation also takes places, with the exception of the two months of rain during the rest of the year. It is obvious, therefore, that the railway encounters in the cart a competitor not to be looked at with indifference and which, however satisfactory the service and rates established by the former may be, will undoubtedly for some time to come still continue to be an important factor in the trade of Central Manchuria.

Competition between Railway and River to the North.—While, as has already been mentioned, the railway to the south of Changchun is free from competing water-courses for over half of the distance to Newchwang and practically the entire distance to Dalny, to the north not only must it contend with the winter cart traffic, but during the open season, from March to October, with junk and steamer carriage on the Sungari and Nonni Rivers.

The Sungari is navigable for junks between Kirin and Petuna, while between the latter place and its junction with the Amur—Harbin, Sansing, and Manchuli being situated en route—steamers as well ply for six months of the year. The Hurka makes fluvial transportation possible between Ninguta and Sansing. The Yitungho, a tributary of the Sungari, is navigated by junks from a point above Changchun. The Nonni, which empties into the Sungari about 20 miles to the north of Petuna, permits of the operation of steamboats to Tsitsihar, beyond which small junks ascend as far as Merguen.

While the extensive system of waterways above described does not constitute so serious a competitor to the railway in Central Manchuria as does the Liao in the southern part, in that it furnishes no such rapid exit to the seaboard as does the latter, the embouchure being situated at Nikolaievsk and goods destined for Vladivostok under any circumstances necessitating shipment by rail or cart from the point above Ninguta where the Hurka crosses the Trans-Siberian; nevertheless, the Sungari and Nonni, with their branches, must play an important role in the trade of the region under discussion and must be admitted as a factor in determining the policy of railway construction therein.

Centers of Trade and Areas of Distribution.—The city of Changchun is the greatest center of trade in Manchuria; its sphere of collection and distribution is about eight times as large as that of Mukden, four times that of Tiehling, and twice that of Kirin, and extends on the north to Tsitsihar and Pei-tuan-lin-tze, on the east to Omoso, on the south to Hailungcheng, and on the west for some distance into Mongolia. Since the region dependent upon Changchun, however, is much less developed than that dependent upon Mukden or Tiehling, the difference between their trade is not so great as that between their areas of distribution and collection, although with the development of Central Manchuria the comparative commercial importance of the former city will constantly become greater.

Kirin.—The area embraced by Kirin goes northward as far as Sansing, eastward as far as Ninguta, southward as far as Hailungcheng, and westward to a point midway to Changchun.

Petuna.—Petuna, while having an independent area of trade and dealing directly to a certain extent with both Newchwang and Harbin, is seen to be within the sphere of Changchun and carries on the larger part of its business with that city.

Ninguta.—Ninguta is situated on the outskirts of the district controlled by Kirin and but 20 miles from the Trans-Siberian Railway, and consequently conducts a more or less extensive trade with both that city and Vladivostok.

It will be seen from a map that the areas of distribution and collection of the various commercial centers overlap each other. This is due to the fact that many midway points constantly deal with two or more marts as well as to the easier accessibility of one point as compared with another during certain seasons of the year, while the existence of a better market in the farther place than in the nearer one sometimes results in a temporary diversion from the ordinary routes. Some points along the Sungari, for example, in the winter time are at present most easily reached by cart from Changchun, but in the summer time by river from Kirin.

Trade between Vladivostok and Central Manchuria.—The question is often asked: Will the future trade of Central Manchuria be conducted through Newchwang and Dalny or through Vladivostok? The answer can concern only the foreign imports and exports, since the native trade between Central Manchuria and the southern parts of the Empire, which will probably always constitute the bulk of the business, will naturally continue to be carried on by way of Newchwang and other southern marts, as shipment by way of Vladivostok would involve the passage of the goods through foreign territory and render them subject to resulting inconveniences with no advantage in the matter of transportation facilities.

As to the foreign export trade of Central Manchuria, the only important products at present sent abroad are beans, bean-cake, and bean-oil, and their market will probably continue to be limited to Japan. The Japanese, consequently, in view of their manifest policy to raise Dalny to the position of the most important commercial port of Manchuria, will divert as much of the export of beans as possible through its gates, while the remainder will probably go out by way of Newchwang and other southern ports rather than Vladivostok.

It is true that whatever wheat is not locally consumed is shipped to Harbin, and ground into flour at the Russian mills, whence a considerable part of that product finds its way into Siberia. Wheat, however, constitutes but a small percentage of the foreign exports; and furthermore, as the erection of several flour mills in the southern part of Manchuria is contemplated by the Japanese, the realization of their plan will mean the diversion of much of it in that direction.

Inasmuch, therefore, as the larger part of the exports of Central Manchuria will continue to pass through Newchwang and Dalny, and as the Chinese merchant generally buys where he sells, most of the imports also will undoubtedly in the future as at present enter by the same point.

It is of course to be borne in mind that the establishment of foreign firms at the newly opened marts will in time enable the Chinese to buy foreign goods as well as sell native products locally, thus obviating the necessity for performing their transactions at Newchwang and Dalny. However, the firms buying from the Chinese will also largely sell to them, and as, moreover, they will for the reasons already described conduct their export business mostly through the southern ports, they will also most likely bring in the larger part of their imported wares by the same route; so that the ultimate localization to a great extent of sale and purchase transactions at the interior marts would not seem to be destined to change the conditions which at present direct the import and export trade of Central Manchuria through Newchwang and Dalny rather than Vladivostok.

However, there is no doubt that the latter place, despite the disadvantages operating against it, will always do a considerable, though relatively small, trade with the marts of Central Manchuria, especially with those in the eastern part, such as Ninguta, and with the exemption

of imports across the frontier from one-third of the regular duties and the realization of the improvement of storage and transportation facilities projected at Vladivostok, it should experience a steady increase.

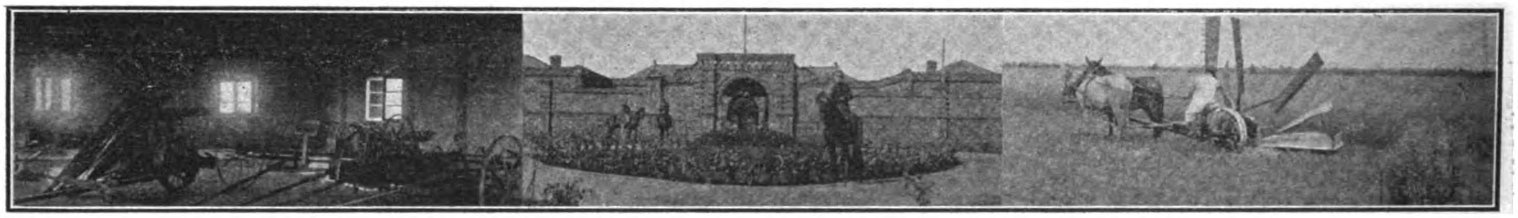
It is not of course to be inferred from the preceding remarks that Vladivostok is not an important commercial centre; for its trade is not dependent upon Central Manchuria, but embraces the extensive territories of Heilungchiang and Siberia, and, although already large, with the removal of the inconveniences to which foreign merchants are at present subjected and the establishment of regular steamship lines to Japan, China, America, and Europe, it is certain to increase.

to international trade, show an increase over the years prior to the war not only in the amount but also in the variety of imported goods.

Lack of Statistics.—The lack of any reliable source of information makes it impossible to secure statistics at all accurate regarding the trade of Central Manchuria. However, a statement of the exports and imports of Changchun and Kirin based on rather incomplete but what are believed to be tolerably approximate figures supplied by the large hongs of those cities will serve to furnish at least a partial idea of its nature and extent. The statistics which follow are for the last China year, which ended on February 14, 1907, of our calendar,

The value of the entire annual trade of Changchun was estimated by a large Japanese firm which had made a somewhat general survey of the conditions, at about 20,000,000 taels; and while the imports are known to be considerably in excess of the exports, it is very unlikely that the difference can be so great, and if the preceding estimate of the entire trade may be taken as a basis, the amount of the exports should probably be placed at somewhere between 8,000,000 and 9,000,000 taels.

Destination of Exports.—With the exception of wheat, and barley and millet, a small portion of which go to Harbin, the points of destination for almost all the exports are seen to be Newchwang and Dalny.



AMERICAN FARMING IMPLEMENTS

VIEWS OF MUKDEN AGRICULTURAL SCHOOL AND EXPERIMENTAL FARM. MAIN ENTRANCE TO SCHOOL

AT WORK WITH A REAPER

Trade.—The trade of Central Manchuria last year was fairly active and but slightly abnormal. While the general statement that the late war impoverished the people by the destruction of property and the prevention of agricultural production, and threw the market into universal disorder, in such a manner that the effects have not yet been overcome, is applicable to all parts of Manchuria, the degree to which this is true in the Central section is much less than in the south, as active hostilities ceased before their destructive advance had penetrated into the former region.

Credits.—Credits have been on the whole quite constant and stable, although a loss of some two million taels affecting all the important merchants at Changchun caused in 1905 by the speculation of a wealthy native in beans created a disturbance in the market from the effects of which it has not yet completely recovered. The action of the Governor at Kirin in forcibly maintaining the value of the tiao notes at an artificially high rate also tended to interfere

and hereafter in referring to last year the Chinese one will be meant.

Changchun.—The following is a synopsis of the amounts and values as well as the points of destination of the chief exports of Changchun for last year:

Kind	*Annual Amount.*	*Annual Value.*	*Destination,*
Beans.......	400,000 piculs	800,000 taels	Dalny, Newchwang.
Bean-cake...	50,000 cakes	15,000 ,,	,, ,,
Wheat......	20,000 piculs	100,000 ,,	Harbin.
Barley......	10,000 ,,	25,000 ,,	Newchwang, Harbin.
Millet.......	400,000 ,,	2,500,000 ,,	,, ,,
Kaoliang...	400,000 ,,	1,000,000 ,,	,, ,,
Indigo......	540,000 catties	6,750 ,,	Newchwang.
Reeds.......	30,000 bales	1,125 ,,	,,
Opium......	10,000 catties	112,500 ,,	,,
Abutilon hemp. ...	10,000 ,,	250 ,,	,,
True hemp..	150,000 ,,	5,625 ,,	,,
Pig's bristles (long)	3,500 ,,	5,075 ,,	,,
do. (short)..	50,000 ,,	30,000 ,,	,,
Horse hair..	5,400 ,,	3,240 ,,	,,
Cow bones..	15,000 ,,	115 ,,	,,
Horses.. ...	5,500 ,,	1,240 ,,	,,
		4,605,920 taels	

Beans.—In the foregoing synopsis of exports it is especially the figures for beans that are believed to be far too small. The larger portion of those exported last year were bought up by the Mitsui Bussan Kaisha, a large Japanese concern, and shipped principally to Dalny.

Bean Cake.—The shipment of bean-cake from Changchun is a new venture, as the loaves are only about one-half the size of those manufactured for the regular export trade and have heretofore been used locally for fodder and fertilizing purposes. The demand for this article in Japan is steadily growing, and owing to the insufficient supply of the large cakes as well as to the want for a part of the market of a less expensive product, increasing importations of an inferior but cheaper grade have of late been made from the Yangtze valley, but, as it has now been found possible to obtain the small Manchurian cakes, which, while not any more expensive, are superior in quality to those from the south, the exportation of the former has undergone a sudden and extensive increase.

VIEWS OF EXPERIMENTAL FARM, EAST GATE, MUKDEN, SHOWING BUILDINGS AND CLASS OF STOCK UTILIZED FOR BREEDING PURPOSES

somewhat with the normal operation of the system of credit exchanges which forms the basis of the larger part of the local trade of Central Manchuria.

Imports.—The imports for the past year were below normal, inasmuch as 1906 and to a certain extent the preceding year had been the occasion for much over-stocking. The end of 1907, however, saw the larger part of the surplus supplies disposed of, and the coming year, if other conditions are normal, as there is reason to believe they will be, should, owing to the more favorable status of the markets since their opening

Changchun picul = 130 lbs. Changchun tael = $0.87 U. S. C.

Value of Annual Trade.—The total value of the exports, therefore, according to the foregoing statistics, is about 5,000,000 taels; but these figures are undoubtedly much too small.

Imports.—The larger part of the imports of Changchun at present consists of goods of Chinese make from the southern parts of the Empire. The principal articles are piece goods, cotton yarn, petroleum, sugar, cigarettes, and miscellaneous merchandise from Newchwang and Dalny, timber and native tobacco from Kirin, and small amounts of flour, cottons, cigarettes, and sundries from Harbin.

Russian goods.—Russian goods, with the exception of flour which is manufactured at Harbin, naturally find it difficult, if not impossible, owing to the long railway haul involved,

to compete in the native market with those brought by sea from other countries; and their importation to a certain extent in the past has been due to the special advantages enjoyed by Russia in this territory as well as to the large number of her troops heretofore stationed there, whose presence has made possible the profitable operation of numbers of her merchants handling principally Russian goods intended for the soldiers but at the same time disposing of greater or smaller quantities to the Chinese. Since the opening to international trade of Changchun, as well as Kirin, of which the same is true, the proportion of Russian stocks in the native shops is gradually decreasing. It is stated, however, that the Russian government purposes to afford every possible means of encouragement to its Manchurian trade, and that not only has it promptly responded to the request of its merchants in Harbin for a reduction in railway transportation rates, but contemplates the reimbursement to them of the Chinese import duties to be levied upon their goods when custom houses shall have been established along the frontier.

Cottons.—The greater part of the cottons imported into Changchun has always consisted of the native product manufactured at Shanghai and other southern cities. Prior to the recent war American goods held second place, after which came English, Russian, and Japanese makes. At the present time, however, Japanese piece goods, have usurped the position formerly held by the American article.

The Mitsui Bussan Kaisha, which at present practically controls the importation of Japanese cottons into Changchun, also handles considerable quantities of American piece goods.

Petroleum.—The majority of the inhabitants of Central Manchuria still content themselves with bean-oil for illuminating purposes. The importations of petroleum last reached about 20,000 cases, which was approximately the same amount as was annually shipped to that place prior to the war. Practically all of this was American, only a small quantity of Russian oil being sold.

Flour.—The market for foreign flour in Central Manchuria is very limited. Small quantities of American flour are imported into Changchun from Dalny and Newchwang, and Russian flour is sent from the mills at Harbin. However, the present selling-prices of the former, owing to the great cost of the long transportation, and of the latter, on account, it is said, of temporary financial difficulties of the manufacturers, are such as to make competition with the native-made flour practically impossible. The Chinese, except in the manufacture of vermicelli for which the white foreign flours are the most suitable on account of their greater glutinosity, prefer those of native make, which are ground from the whole wheat, and buy imported flours only when they can secure them at cheaper prices. The mills at Harbin employ Manchurian wheat, and upon recovery from their present embarrassment and the restoration of normal conditions, it should be possible for them to put out a flour suited to the taste of the Chinese and at such a figure as to compete easily with the native product. It is not probable, unless the cost of transportation or of production be considerably reduced, that American white flour will ever enjoy extensive sales in Central Manchuria. The importation of whole wheat flour, however, might be successful, not only because the cost of placing it on the market would be cheaper but because the Chinese, if their taste were suited, would be willing to pay a higher price for it than for ordinary wheat flour.

The importations of flour into Changchun last year consisted of 10% American, 20% Russian, and the remainder the native product. The selling prices were as follows: American (50 lbs.), $2.60 small coin; Russian, $2.80; native, $1.95.*

Cigarettes.—Prior to the opening of Changchun to foreign trade most of the cigarettes imported were Russian. Since then, however, the Japanese Tobacco Monopoly has established an agency there, and its cigarettes have quickly attained fairly extensive sales. With the opening of the campaign of the British-American Tobacco Company, whose systematic and energetic methods have proved so successful in southern Manchuria, English and American brands are appearing on the market and are certain to gain a rapid ascendency. Cigarettes are fast taking the place of the old-fashioned native pipe and now rank as one of the most important imports of Manchuria.

At the present time, the Japanese virtually control the market for miscellaneous goods, and as the old stocks are disposed of, their places are mostly filled by the cheaper Japanese ones.

Not only the customer but the merchant himself is generally unable to distinguish between the makes of his goods. Japanese articles almost invariably contain Roman lettering rather than Japanese, if not both, and in numerous cases they are more or less closely copied imitations of other foreign goods which happen to have gained considerable popularity among the natives. As a consequence the buyer secures a Japanese article and departs with a feeling of satisfaction that he has obtained something similar to his purchase of the previous year but at a much cheaper price.

Kirin.—The exports and imports of Kirin are of the same general nature as those of Changchun.

* $1.00 small coin = $ 0.47 U. S. C.

Exports.—The statement was made by a number of *hongs* that during the four winter months 1,000 carts laden with local produce daily enter the city and during the remainder of the year about 500, one-fourth of them bringing tobacco, three-twentieths hemp, three-tenths beans, and the rest wheat, kaoliang, charcoal, and other products. According to these figures, therefore, there are annually brought into the city, and the larger part thereof exported, about 60,000 carts, or 720,000 piculs, of tobacco; 36,000 carts, or 450,000 piculs, of hemp; 72,000 carts, or 720,000 piculs of beans; and 72,000 carts of wheat, kaoliang, charcoal, and other articles. Such figures as these are of course too indefinite to be at all reliable, serve merely to give a general idea of the extent and nature of the export trade. They are undoubtedly far too high; for while more hemp and tobacco are exported from Kirin than from Changchun, the latter place is a much more extensive center of collection for beans, although according to the foregoing figures it is considerably smaller.

Lumber.—Another important export of Kirin is lumber. The timber is felled along the Sungari and rafted into Kirin, where it is sawed and a considerable portion manufactured into junks, carts, coffins, and furniture. The sawing has heretofore been done entirely by hand, but the provincial Governor has recently installed a steam sawmill of small capacity.

Ginseng.—Ginseng is also exported from Kirin. The surrounding region is one of the principal sources of supply of the natural root in Manchuria.

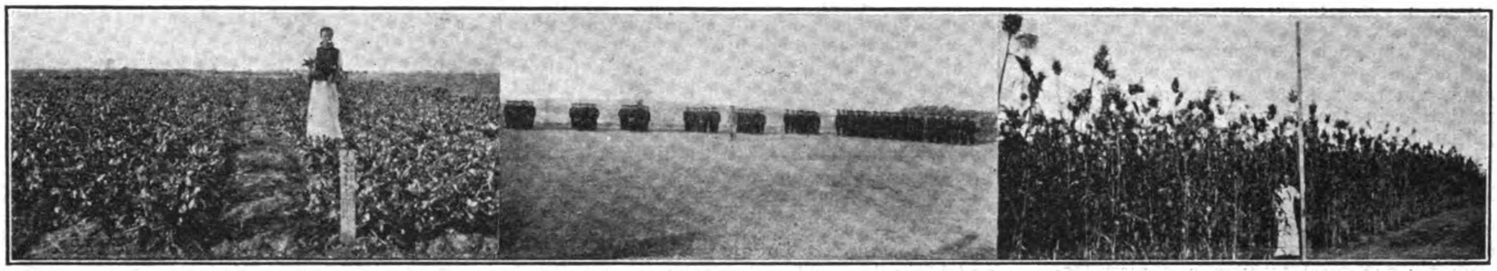
Furs of both domestic and wild animals are also shipped from this place.

Imports American Cotton.—There were imported last year only 3,000 bales of American sheetings, and 2,000 bales of drills, while during 1905, the year of over-stocking, 12,000 of the former, and 10,000 of the latter were shipped into Kirin. The stocks remaining on hand at the end of 1906 amounted to 2,500 bales of sheetings and 2,000 bales of drills. The annual importations prior to the war averaged 10,000 of the one and 8,000 of the other.

Flour.—For foreign flour there is practically no demand. In addition to the numerous horse-power mills run by private persons, the Governor operates a steam plant, which, together with the former, more than supply the demand of this region.

Petroleum has begun slowly to replace bean-oil as an illuminant; and the public street-lights, of which an excellent system has been installed at Kirin, consume a considerable quantity. Practically all the oil used is American.

The miscellaneous goods on stock at Kirin are at present principally German and Russian; but, as in the case of Changchun, they will probably be fast supplanted by those of Japanese origin.



VIEWS OF THE AGRICULTURAL SCHOOL AND FARM NEAR MUKDEN

TRADE METHODS

Monopoly of Trade.—The trade of Changchun and Kirin, as was true of the older ports of China, especially Canton, during the early years after their opening, is virtually controlled by a few large *hongs*, or native wholesale brokers, about eleven in number at the former place and thirteen at the latter. In addition to these there are numbers of smaller ones which do a certain amount of business though but a relatively limited part of the whole trade.

The large *hongs* own extensive compounds provided with capacious storing facilities as well as with guest rooms and stables where they accommodate for a few days customers and their drought-animals arriving from distant places. If the goods are not sold before his departure and the seller desires to quarter his representative in the *hong* to supervise their disposition, he may do so for a daily charge of 70 cents (small coin), which at Changchun includes food, but does not at Kirin.

Manner of Transaction.—These native brokers undertake to dispose of wholesale quantities of foreign goods for importers as well as native products for the local farmers and manufacturers. They maintain at Newchwang and other ports their own agencies, to which the foreign importer has heretofore turned over his goods and with which he has settled his accounts without ever establishing immediate relations with the head *hongs*. Since the opening of Changchun and Kirin to international trade, however, foreign importers are commencing to deal directly with the head *hongs*, sometimes locating a representative at those cities in office premises leased by themselves, and at others merely stationing a native agent in the *hong* compound in the manner already described, and they are thus enabled more effectively to oversee the sale of their goods, acquire an intimate knowledge of the needs and peculiarities of the market, and by acquainting themselves with the consumers to prepare the way for the ultimate conduct of their business without the intervention of the brokers.

As regards native products, the farmer or manufacturer generally has more or less permanent relations with a certain *hong* or *hongs*, which either sell his goods locally to representatives of firms in southern ports who come to purchase on the spot or have permanent headquarters at Changchun and Kirin, or else dispose of them through their own agencies situated at Newchwang and other seaboard cities. The former procedure, with the increasing establishment of the representatives of foreign firms at the newly opened marts, will soon become the more usual one. The larger part of the beans exported last year, for example, were locally sold by the *hongs* to the Mitsui Bussan Kaisha, which has its own office at Changchun.

Charges.—The brokers under discussion charge the seller a commission of 2 or 3 per cent, varying according to the kind of goods, at both Changchun and Kirin, and the buyer 2 per cent at the former place and 1 per cent at the latter. The selling commission on grain, beans, piece goods, cotton yarn and matches is generally 2 per cent, while for most miscellaneous articles it is 3 per cent. At Changchun no godown rent is charged, unless the goods are removed elsewhere without being sold or remain undisposed of for too long a period. At Kirin, on the other hand, a moderate charge, varying according to the class of merchandise, is made for storage from the day the goods are deposited in the *hong* compound. At neither place do the brokers undertake to secure goods against damage or destruction, although Kirin *hongs* make an indefinite promise to "suffer a share of the loss if great."

Taxes.—At Changchun a double tax of 9 per mille and 4.4 per mille is collected from the seller on his goods when placed in the *hongs*, and a similar excise of 7 per mille and 4 per mille from the buyer at the time of their delivery to him although goods imported and exported by foreigners are, according to treaty, exempted within the open marts from inland taxation, to which class the foregoing duties belong, it would be difficult under the circumstances to avoid their imposition in dealing through the native brokers, as these taxes are not levied upon the seller or buyer, as the case may be, directly, but through the *hongs*; and the latter, both on account of their continued payment of these taxes for so long a time as to render this act to them almost an inherent and essential part of a commercial transaction, and because of the intimate and interdependent character of the relations which the merchants sustain toward the officials and which retard any attempt at evasion of the duties levied by them. Should the foreigner at the beginning, therefore, proceed to protest and insist on the exemption of his goods from the taxes in question, it is probable that the *hongs* would decline to deal with him; and should he attempt to operate independently from the commencement, they might, though how far it is difficult to say, interfere with his business.

Operation through hongs preferable at the beginning.—In view of the extensive control which the *hongs* exercise over trade at Changchun and Kirin, it would probably be difficult, if not in many cases impossible, for the foreigner at the start successfully to establish profitable commercial relations without their assistance. Furthermore, until the volume of his business has assumed sufficiently large proportions, it would also be less expensive for him to pay the commissions, storage charges and duties to the native brokers than to maintain his own godowns and staff of clerks.

Final Establishment of Independent Relations.—While buying and selling through the *hongs*, however, it would be greatly to the interest of the foreign merchant to keep one or more native agents of his own at each city, both to guard against possible damage to his goods, since the brokers, as already stated, refuse to secure them, and to tour the surrounding district to advertise his stocks and secure orders, thus greatly increasing the sales otherwise possible. The fact that such an agent was working through a certain well-known *hong* would give him standing, and he would thus under the most favorable circumstances make the acquaintance of the consumers and bring the name and character of the foreign firm represented by him to their knowledge, in that manner preparing the way, when the amount of business should have increased sufficiently, for the ultimate severance of its relations with the native brokers and the establishment of direct connections with the buyers.

Example of a Transaction.—The description of the elements involved in a transaction made by a foreign firm through one of the Kirin *hongs* may, it is believed, be of both interest and value as an illustration of business procedure in central Manchuria. A Newchwang firm during last January decided to attempt to dispose at Kirin of a small stock of American sheeting. The *hong* selling-price in Kirin at that time of this class of goods was 308 tiaos per bale. The net figure, therefore, after deducting transportation charges, brokerage, likin (taxes) and storage fees, at which they had to to be laid down in Newchwang was computed as follows

Kirin *hong* selling-price..........		308 tiaos.
Likin............	0.9% 0.1%	
Brokerage........	2.0%	
	3.0% (of 308 tiaos) =	9.24 tiaos.
		299.76 tiaos.
Godown hire.....	1 tiao	
Cartage from Newchwang........	11 tiaos	
	12 tiaos	12.00 tiaos.
		287.76 tiaos.

287.76 tiaos @ 4.13=69.68 Kirin taels @ 1.055=70.51 transfer taels* (net at Newchwang) per bale.

The price at which the buyer secured the sheeting per bale was as follows:

Kirin *hong* selling-price..........		308 tiaos.
Likin............	0.7% 0.4%	
Brokerage........	1.0%	
	2.1% (of 308 tiaos) =	6.47 tiaos.
Price per bale to buyer =		314.47 tiaos.

The difference, therefore, between the net figure per bale at which the goods were laid down in Newchwang and their final cost to the buyer was as follows:

314.47 tiaos @ 4.13=76.14 Kirin taels @ 1.055= 80.33 transfer taels.

80.33 transfer taels—70.51 transfer taels=9.84 transfer taels (difference between Newchwang net and cost to buyer.)

Methods of Payment.—Payments for goods sold or purchased at Changchun or Kirin by foreign firms located at Newchwang are made by drafts in transfer taels through the native banks. If such a firm, however, has a local agency at these places with which accounts may be settled, payment is usually made in silver specie or bank notes, the principal kinds of currency in circulation being "small coin" (silver), rubles, and sight bills issued by the Russo-Chinese and Yokohama Specie Banks. The constant fluctuation of rates of exchange between these currencies complicates accounting and discourages the granting of long credits which might otherwise be beneficial.

"Credit" Transfer System.—Local transactions between natives are conducted almost entirely on a "credit" basis, the only cash payments involved, except in retail business, being those of taxes and guild fees, which are made in "cash" or copper.

The basis of the "credit" system is the "tiao" note, which is issued without security by the native banks and large *hongs*, and the value of which differs with each place. Accounts with the native brokers are settled by instalments made every three days in *tiao* notes and in such amounts as always to leave a small balance in favor of the *hongs* at the end of the month. Complete settlement would constitute the severance of the native merchant's, manufacturer's or farmer's relations with the *hong*.

While this system of "credit" transfers is admirably adapted to local conditions, and, as long as stable, greatly facilitates business, it constitutes a very precarious financial scheme; and while, barring a minimum of abuse to which it is undoubtedly subject, the strict code of business honor by which native merchants are bound obviates any internal disorder, yet, if unintelligent or unscrupulous officials interpose, as in Kirin city, by forcing the value of the *tiao* note to excessive rates, or, as in Shengking province, by suddenly illegalizing the system or demanding the immediate deposit of security, disturbances of the market varying from depression to wide-spread failure are the result.

FOREIGN ENTERPRISE IN CENTRAL MANCHURIA

Residential and Trade Rights.—In the Japanese Treaty providing for the opening of Changchun and Kirin to international residence and trade, provision is also made for the delimitation of a foreign concession therein. While the Chinese contend that the rights of foreigners to such trade and residence are confined to settlement areas hereafter to be laid out, the Japanese Government takes the attitude maintained by the United States in the case of Mukden and Antung and interprets the treaty to mean that the entire cities have been openeds and, by successfully enforcing the right of it, nationals to indiscriminate residence and trade

*1 transfer tael=$0.834 U. S. C.

at both places, has established a precedent whereby other foreigners may also rent or purchase property wherever available.

The restriction of residential and trade rights to the limits of a concession not only would delay the establishment of foreign firms on account of the unavailability within such an area of rentable business premises and consequent necessity for erecting new buildings, but would for the same reason subject such firms to outlays which the volume of their business might not for some years warrant. In some cases, moreover, location within a concession would place a firm at a considerable distance from the business centre, as it is probable that but few foreigners will for many years establish themselves at the cities in question and the Chinese merchants would doubtless be slow to remove their premises to a settlement area.

Changchun.—Changchun, also known as Kuangchengtze, is a walled city with a population of about 100,000. The inhabitants belong almost entirely to the merchant class, and the larger part of the buildings are *hongs* with spacious court-yards. The terminus of the South Manchurian Railway, the Japanese line, is at present located at Mengchiatun, about 5 miles to the southwest of the city, and that of the China Eastern Railway, the Russian line, some 4 miles to the northwest. A new Japanese terminal station has been built to the north of the wall at a short distance from the southernmost point of the Russian line. Freight and passengers were formerly conveyed between the two stations in Chinese carts or Russian *droschkes* but now the trains meet.

Changchun is a purely commercial city, and, unlike Kirin where official progressiveness has brought about considerable modern improvement, its streets are poorly lighted, if at all; its police force, especially the night shift, is entirely inadequate; the roads are in a neglected condition and during the rainy season are converted into quagmires; sewers are wanting and refuse is allowed to accumulate.

The change of administration and the advent of the Japanese, who have been responsible for much road improvement and sanitation in southern Manchuria, has induced the officials to undertake similar projects in Changchun.

Kirin.—Kirin, the capital of the province of that name and with a population of about 125,000, is situated on the west bank of the Sungari River about eighty miles to the east of Changchun. The journey between these two cities is made by Russian *droschke* or Chinese cart, the former method consuming one day and the latter two. During the open season the capital may be reached in from two to five days by junk or small steamer from Tonlaichioo, a station on the China Eastern Railway.

The inner city of Kirin is enclosed by a low mud and brick wall approximately five miles in circumference, while the outer city extends for a considerable distance in both directions along the banks of the river. The main avenues inside the walls are planked; an excellent system of public street lights has been installed; and a large and efficient police force is maintained. While a large portion of the buildings are official, including the viceregal yamen, the provincial treasury and mint, the government Boards, the court-house and numerous public schools *hongs* surrounded by extensive compounds stored with large quantities of local and imported products, as well as industrial establishments, are everywhere evident.

Foreigners at Changchun and Kirin.—Foreign enterprise at Changchun and Kirin, as far the number of its local representatives established at those places is concerned, is at present largely Japanese. Upon the withdrawal of the Russian troops most of the merchants also retired to Harbin. The Japanese, on the other hand, made up almost entirely of small dealers, innkeepers and artisans, continue to increase in numbers. Other foreigners are also gradually establishing branch offices or native agencies.

Banks.—The Russo-Chinese Bank has branches at both Changchun and Kirin and enjoys a long-established business among the natives. Its dealings with the Chinese consist in large part of loans to merchants and officials at rates of interest averaging 12 per cent.

The Yokohama Specie Bank has also a branch at Changchun and at Kirin.

Japanese Firms.—The principal Japanese concern operating in Central Manchuria is the Mitsui Bussan Kaisha. At the present time it controls the larger part of the export trade in beans and bean-cake, and also supplies the majority of piece goods, American as well as Japanese, and most of the petroleum shipped into Changchun. Its interests at Kirin are as yet comparatively small. This company, as already mentioned, at present conducts its transactions, both sale and purchase, largely through the Chinese brokers, but contemplates the erection of its own godowns, upon the completion of which it will probably sever its connections with the native *hongs*.

Besides the above-mentioned concern, there are two or three smaller Japanese firms which do a more or less extensive wholesale business with the Chinese. The remainder of the Japanese merchants located at Changchun and Kirin consist, as elsewhere in Manchuria, of small retailers and confine their trade almost entirely to their own countrymen.

The Japanese Government Tobacco Monopoly established its office in Changchun and Kirin.

Occidental Firms.—Few Occidental firms have as yet installed branches in Central Manchuria. Of these the one whose interests are at present the largest is the British-American Tobacco Company, which has a Chinese-speaking European representative in Changchun, Kirin, and Harbin. Butterfield and Swire, whose principal article of import into Manchuria is sugar, refined at its plant in Hongkong, have a native agent in Changchun, who through his branch at Kirin also controls the business of the company at that place. Arnhold Karberg and Company, dealing principally in machinery, firearms, cottons, and miscellaneous articles, are represented at Changchun by a Chinese agent, while their general representative for Manchuria, a European, visits that city from time to time to oversee their interests. The China and Japan Trading Co. have their own agent at Changchun, and the firm of Clarkson & Co. is now to establish a branch there.

Commercial Opportunities.—In addition to present importations, this region should before long furnish a market for various other products. The construction of railways which is sure to be undertaken should create a demand for rolling stock; the expansion of steamer traffic on the Sungari and Nonnin Rivers should afford a market for marine engines and other boat supplies; the opening of mines should supply a new field for the sale of machinery used in connection therewith; and the installation of electric light and car systems which is certain to be concomitant with the approaching era of progress and improvement should provide a new outlet for trade in electrical equipment.

THE OPEN CITIES OF MANCHURIA

The population of Manchuria is almost entirely agricultural. The residents of the treaty marts do not exceed 10% of the total number of inhabitants. Their wants are few, their clothing is simple, their implements, furniture, and utensils are rough and crude. The heaviest imports are for food, clothing, and light; flour, cotton cloths, and kerosene oil. The artisans are comparatively unskilled; wild silk grown in Manchuria is exported to Shantung and not woven by local looms, and manufacturing activity is confined to the fabrication of those articles indispensable in the prosecution of the simple industries upon which the inhabitants depend for their livelihood.

While Kuangchengtzu and Kirin in the north may be regarded as secondary depots, drawing their stocks from the seaboard and re-distributing these goods through large areas, the cities of Shengking, because of their proximity one to the other and since they all maintain direct and intimate relations with Newchwang or Dalny, importing foreign goods in quantities sufficient to meet the local demand and exporting the produce grown in their vicinity or transported thither from the north, are the points of distribution and collection for limited spheres.

As the military administrations established throughout the regions occupied by the Japanese armies during the war were withdrawn, Mukden and Antung, opened by the American-Chinese Commercial Treaty of 1903, Tatungkou by the Chino-Japanese Treaty of the same year, and Fakumen, Hsimintun, Tiehling, and Tungchiangtzu in Shengking, Kirin and Kuangchengtzu, Harbin, Tsitsihar and Manchuli in Kirin province, by the Chino-Japanese Manchurian Agreement of 1905, have been declared open to international residence and trade; while Fenghuangcheng and Liaoyang, also in Shengking have also been opened.

Tiehling.—Tiehling is a walled city of 29,000 Chinese and about two thousand Japanese inhabitants, located on the banks of the Liao river forty miles north of Mukden on the South Manchurian Railway. There are only two streets of importance in the walled town, the majority of the large *tiens* or *chang fang*, the exchanges of China, being located in the suburbs along the main cart roads connecting this place with the northern and southern marts. The Liao river runs south east from Tungchiangtzu, which is about fifteen miles north west of Tiehling, to the latter city, then turns to the south west crossing the valley in a diagonal line until it passes not far to the east of Hsinmintun.

The hills rise from the Liao plain about one mile to the east of Tiehling and in this vicinity are said to be deposits of coal as well as gold. No mines, however, have thus far been operated with results that would warrant a statement that these veins were capable of profitable exploitation on western lines.

The city itself is prosperous but a country town rather than a business center although during the past two seasons it has been active in the bean trade, in this regard almost entirely destroying the trade of Tungchiangtzu which was formerly the principal point of shipment and collection. The presence of a considerable Japanese garrison during 1906 was also responsible for a certain unnatural activity and attracted a large number of Japanese merchants and others not always of the most desirable character.

There are 782 shops, 36 large mercantile establishments dealing in piece goods and foreign imports generally, six bean mills, two distilleries and a number of minor industrial establishments such as brick kilns and wheelwright's works, rope walks, etc.

The British-American Tobacco Co. maintains a foreign representative at this place and Butterfield and Swire and Arnhold, Karberg and Co. have opened Chinese agencies. The Japanese Manchuria Milling Co. have erected a large flour mill at this place, and is working to its full capacity.

Imports.—Japanese goods have practically controlled the market, 7,580 bales of their goods having been sold as against 1870 of the American article. Although the accompanying statistics are compiled from the report furnished by the Tiehling Chamber of Commerce and from Japanese sources the figures can be considered only approximately correct.

Article.	Quantity.	Value in U. S. Gold.
Satin		
German		$ 11,900 00
Matches		750 00
Sheetings		
American	1,870 bales.	121.5 0 00
Japanese	7,580 ,,	881,000 00
Flour		
American	80,000 bags.	100,000.00
Petroleum		
American	23,500 cases.	40,420.00
Paper		
Native, coarse		26.487 50
,, medium quality		960 75
,, good ,,		625 00
Kaoliang	2,007.8 tons.	
Native		55 019.00
Beans	27 872,26 tons.	
Native		1,275,119 87
Tobacco	1,181,838 lbs.	
Native		6 ,863.31
Total		$2,077,615.48

Exports.—Tiehling during the past few months has been with Kuangchengtzu the principal point of shipment for beans and bean cake. The demand in Japan for beans and bean products has been greater than ever before. Small cakes, which were heretofore reserved for local consumption, were eagerly sought for the Japanese market, and the entire output of the mills at Tiehling and Mukden was bought forward.

It is stated that the South Manchurian Railway during 1906 carried from Tiehling 5,310 tons of bean cake and 18,785 tons of beans to Dalny and 923 tons of bean cake and 7,030 tons of beans to Newchwang. These figures, however, represent but a portion of the total amount transported during the season.

Fakumen.—Like Hsinmintun, Fakumen is not far from the Mongolian border. Formerly the center of an important trade with the south eastern portion of that region the town enjoyed a large measure of prosperity which has now disappeared owing to the removal of the horse and cattle markets to Chengchiatun in the region newly opened to the north, as well as to the disturbed conditions of the past two years.

The town is located on the western edge of the Liao plain not far from that stream down which goods collected at Fakumen have been shipped to Newchwang. There is, as in the other smaller cities of Manchuria, but one principal street, the buildings being substantial and built to protect the inhabitants from the rigors of the northern climate.

There are twenty bean mills which produce 715 tons of oil and 320,000 cakes per annum. There are 396 shops of all sizes but no large importers of foreign goods. There are 19,432 Chinese and about 40 Japanese inhabitants.

Foreign imports regarding which no figures have been obtainable come largely by cart from Hsinmintun or Tiehling with Newchwang as the original port of entry.

Beans and bean cake form the principal export, and are shipped south by river. Skins, hides, and bristles as well as Mongolian wool, are sent to Hsinmintun and thence by rail to Tientsin.

These two towns, Hsinmintun and Fakumen, will, it is hoped, be connected by the new R. R. line to be constructed north to Tsitsihar.

Hsinminfu.—Hsinminfu is an unwalled city of about twenty thousand Chinese and between one and two hundred Japanese inhabitants, located thirty-seven miles west of Mukden. For many years it has been an important cart station, it having been estimated that fully 2,800 carts enter the town daily during the busy winter season.

The town lies in the Liao plain and there is but one main street along which all the principal business houses are located. There are comparatively few brick buildings, the majority of the houses being constructed of mud and thatch. To serve the carters and quarter their animals and vehicles there are a number of large inns, but as the place has owed its prosperity to a transient rather than to a permanent local trade there are few banks and large shops dealing in foreign imports.

The local Chamber of Commerce states that there are three banks doing business in Hsinmintun capitalized at from 40 to 80 thousand dollars gold. The thirty most important firms have only from eight to twelve thousand dollars invested in their business, there being in addition some fifty small dealers.

There are no foreign firms trading at this place and there is scarcely sufficient business to warrant the establishment of any agencies, it being found most advantageous to deal through native merchants.

Imports.—The Hsinmintun Chamber of Commerce states that, during the past Chinese year 1907, 700 bales of American and 100 bales of Japanese shirtings, valued respectively at $45,-500.00 and $5,200.00, were imported. 4,000 bags of flour, valued at $5,000.00, and 15,000 cases of kerosene, valued at $24,750.00, were sold during the year. In addition to the above there were certain amounts of cotton italians, matches, native cloth, paper, opium, grain, and tobacco imported. There is little demand for foreign miscellaneous goods.

Imports are principally brought in by cart from Newchwang although a certain amount are rail borne from that port or from Tientsin by the Imperial Railways of North China.

Exports.—There are thirty-two bean mills in Hsinmintun with a daily summer output of 6,000 and a winter output of 4,000 cakes. These are now partly owned by Japanese.

Beans and bean cake were formerly collected at Hsinmintun and shipped south to Newchwang from the river port on the Liao seven miles east of the town. Tobacco entering from Kirin and the north is sent out to China proper through the junk port of Chinchow, and skins, hides, and bristles from Mongolia and northern Manchuria by rail to Tientsin. The values of these exports was not to be obtained.

Tungchiangtzu.—Situated on the banks of the Liao river about fifteen miles north west of Tiehling, Tungchiangtzu was formerly an important center of the grain trade, annually storing in the large brick granaries erected along the banks of the Liao about 65,000 tons of grain, which was shipped south to Newchwang when the river opened in the spring. Since the Boxer year, however, the town has lost its former prosperity and at the close of 1907 but nine out of the twenty store houses were open while the trade had been reduced to less than one-third of its volume.

There are but 7,299 inhabitants, the large proportion as elsewhere in Manchuria being men. Few buildings have been erected in addition to those in connection with the granaries referred to. There are three bean mills, no banks, and only three so-called first class shops, capitalized at between seven and sixteen thousand dollars gold. Eight smaller dealers have invested a little over $1,500.00 each. No European or American firms have established branches and there are but few Japanese merchants who are principally engaged in the operation of a small tram line to Tiehling over which they shipped beans and bean products for transport south by rail.

The local Chamber of Commerce states that 30,000 bags of flour were imported last year, a figure that appears too large. Fifty bales of Japanese shirtings, valued at $2,600.00 gold, and 15,000 cases of oil, valued at $24,750.00 gold, were imported during the last Chinese year. The figure for cotton cloths would appear to be too low. No values were obtainable for miscellaneous articles, native goods, etc. It is safe to say, however, that the trade of the town is inconsiderable and that there are small prospects for its future growth.

Liaoyang.—Liaoyang is situated on the eastern edge of the Liao plain about forty miles south of Mukden on the South Manchurian Railway. It is one of the oldest cities in Manchuria, having served as one of the principal strongholds of both the Korean and Chinese forces who in ancient times established themselves in this region, the latter being eventually driven back before the gradually developing power of the Manchus, who, having gained control of the country east of the Liao, finally made their way to Peking.

The hills to the east of the town are rugged and barren and, until recently, sheltered "Hunghutzu" bands who descended from their mountain fastnesses to prey upon the country folk and travelers along the main highway.

The one principal business street runs through the center of the walled town, which is surrounded by extensive suburbs. The population is estimated at about forty thousand Chinese and between two and three thousand Japanese. There are five hundred shops, the majority thereof being of no particular importance. Few large firms are engaged in the general import and export business and the local Chamber of Commerce has failed to furnish statistics regarding the trade of the city. Its general character, however, is similar to that of Mukden. Japanese cottons control the market, but there is a growing demand for American kerosene and flour.

There are few exports.

The British-American Tobacco Co. and one or two other foreign firms maintain native connections at Liaoyang but the trade of the town will not for years to come, if ever, warrant the installation of foreign establishments.

Fenghuangcheng.—Fenghuangcheng is located on the Mukden Antung Railway about forty miles by rail and road but in reality not more than thirty miles from Antung. It is a walled city of between twenty and thirty thousand inhabitants and nestles in a valley in the mountains which will effectually prevent any great agricultural development in this region, which must, because of its physical characteristics, depend upon the exploitation of its mineral resources and the growth of the wild silk industry, already the source of considerable profit, for its future and increased prosperity.

A small quantity of bean cake and beans and a certain amount of maize produced in the neighborhood of Fenghuangcheng find their way across the Yalu into Korea or are shipped through Antung to Shantung by junk.

Imports of which but limited quantities are consumed in this region are entered at Antung and carried inland by cart or by the Japanese narrow gauge railway. Flour and kerosene and cotton goods form the bulk thereof, there being no extensive demand for miscellaneous articles.

Foreign Settlements.—Although it is stipulated in both the American-Chinese and Chino-Japanese Treaties of 1903 that there shall be international settlements at Mukden, Antung, and Tatungkou, no steps have as yet been taken for their delimitation. Discussion regarding this matter was for some time postponed on account of the Chinese contention that foreign goods would be liable to inland dues outside the boundaries of such areas, and the consequent unwillingness of the interested powers to negotiate concerning their location. The Chinese authorities, nevertheless, have endeavored in the south as at Kirin and Kuangchengtzu to insist that all foreigners must ultimately reside within certain specified limits. At Mukden, the provincial Government has purchased a large tract between the city and the station of the South Manchurian Railway and has proposed that this shall be the future settlement site. There is little prospect of an immediate solution of the problem, the provisional regulations for the government of the Mukden concession which the Chinese prepared are unacceptable to the powers whose sanction therefor must be obtained, while the presence of large numbers of Japanese within the cities in question and their determination not to be confined to certain definite areas, renders it extremely unlikely that the right of unrestricted residence now assumed by all foreigners will in the future be curtailed.

COMMERCIAL CONDITIONS

Ports of Entry.—Along the southern coast of Shengking, there are a number of ports, few of which, however, are of any importance. Antung, the main port of entry and export for south eastern Manchuria, and Tatungkou have exported wild silk, timber, and maize, and imported small stocks of foreign goods, while Takushan and Pitsewo to the east and Chinchou to the west of the Liaotung peninsula each year harbor large numbers of junks. Through these places there has been a certain trade, whose value it would be difficult to ascertain, with the coast cities of Shantung and Chihli; but the areas profiting thereby have been comparatively insignificant. Thanks to the absence of Customs, Dalny flourished during the prolongation of the abnormal conditions created by the war. The future of this town, however, is still problematical, as its development depends upon its advantages as an ice-free port favored by special transportation facilities, which will nullify the more favorable location of Newchwang if not actually discriminate against that port, as opposed to its undesirable situation in a thinly populated region at the end of a long railway haul.

Newchwang is the most important point of entry and export. Foreign interests have long been established there and the city is connected by radiating cart roads, the Liao River and its tributaries, and the South Manchurian and Imperial Chinese Railways with all the important marts in the valleys of the Liao and Sungari.

Currency.—The Mexican dollar is current throughout Manchuria, while small coin, ten

and twenty cent pieces, of which it is estimated there are $6,000,000.00 in circulation in the province of Shengking, *tiao* notes, and ten twenty, fifty, one hundred (or ten ten cents) cent and one, five, and ten dollar notes, issued by the Viceregal Bank, are used for nearly all retail transactions. Chinese official figures place the number of *tiao* notes in circulation at Mukden at 1,600,000 *tiaos* or about $130,000.00 U. S. gold. The same authorities state that $628,332.00 (silver) in Viceregal paper are in use in this city, while the Yokohama Specie Bank gives the figure as $2,300,000.00 (silver).

At Antung it is estimated that there is a total of about $1,700,000.00 (silver) in circulation, in small coin, sycee, and bank notes. It is probable that in the entire province there are about twenty millions of silver dollars, yen, etc., or about $10,000,000.00 U. S. gold, in circulation at the present time. This estimate does not include the figures for Newchwang.

Roubles and silver yen notes are used at varying rates in northern and southern Manchuria respectively, the former commanding a better average price as they are accepted at their face value at any branch of the Russo-Chinese Bank, while the latter are discounted at Tientsin and Shanghai. Japanese war notes, of which there are still some in use, are accepted by the Specie Bank at par with silver yen, but are rated a little higher by the native money changers as the man on the street is more familiar with these notes than with the new issued Specie Bank paper.

The value of the local taels, like weights and measures, vary at each place, but the Newchwang "transfer tael" is used for practically all transactions between the interior and the seaboard. Shanghai accounts are generally paid either directly, or through Newchwang transfer money, in Shanghai taels.

The South Manchurian Railway Co. accepts only silver or gold yen or war notes; the Japanese Posts and Telegraphs the same; the Russian Railways insist on payments being made in roubles; while the Chinese Posts and Telegraphs deal in Mexican dollars, receiving Japanese currency or small coin at a discount.

Banks.—Foreign banking facilities in Manchuria are limited to those offered by the Russo-Chinese Bank with branches at Kirin, Kuangchengtzu, Newchwang, Harbin, Tsistsihar, and Hailar; the Yokohama Specie Bank which maintains offices at Dalny, Port Arthur, Newchwang, Liaoyang, Mukden, Tiehling, Kuangchengtzu, and Antung and proposes to open at Harbin and Kirin; and the First and Fifty Eighth Banks with branches at Antung only.

Native banks, notably the branches of the Government or Hu Pu Bank at Mukden and Kuangchengtzu as well as Newchwang, the Viceregal Bank or Kuan Yin Hao, an institution organized under the patronage of the Viceroy, as well as other Chinese houses are used by foreigners in transmitting funds to Shanghai, generally through Newchwang, to that port, or to other cities in China.

The Yokohama Specie Bank at the present time makes an initial charge of one yen and fifty sen or fifty cents gold on commercial paper, charging ⅛% for ordinary and ¼% for telegraphic transfers. This institution is unwilling, in Manchuria, to open accounts in any currency save Japanese silver yen. Deposits are accepted in small coin at from ten to fifteen per cent discount and in Mexican dollars at a 3 to 5% premium, but while drafts on China ports for either taels or Mexican dollars are obtainable, transfers between the Manchurian offices of the bank must be made in Japanese currency. So heavy is the loss suffered on transfers that many Chinese firms, who find equal difficulty with their own banks in securing more favorable rates between Manchurian cities and Chefoo or between the interior and Newchwang, not infrequently dispatch messengers who personally bear the "small coin" from one place to another, for this currency although it is the medium most generally in use is not regarded with favor by the bankers.

Both the Russo-Chinese and the Yokohama Specie Bank have extensive connections with the Chinese mercantile community. The former institution acted as the agent of the Russian Government before the war and it will require considerable time to unravel the tangled threads by which the Bank bound its politico-financial associates.

The Yokohama Specie Bank loans sums not exceeding $5,000.00 (silver) to guaranteed Chinese charging 10% interest thereon. The various agents of this institution are interesting themselves in the promotion of joint Chino-Japanese enterprises.

It is stated that the Industrial Bank of Japan will open in Manchuria prepared to make loans on crops and to function as a savings bank, forms of business which have not heretofore been undertaken by foreign or native institutions but which should be profitable as soon as they are thoroughly understood and appreciated by the public.

Mints.—There are two mints in Manchuria, at Mukden and Kirin. At the former 643,333 pounds of copper were used during 1906; 36,000,000 coins were stamped, of which 90% were ten-cash pieces weighing two mace, and 10% twenty-cash pieces weighing four mace each. The last Viceroy of Shengking, Chao Ehr-Hsun, arbitrarily fixed a value of 1,000 cash =$1.00 (silver). The issues were therefore valued at $324,000.00 and $36,000.00 (silver), approximately $160,000.00 and $17,500.00 U. S. gold, respectively.

The Kirin Mint during 1906 issued $10,274,-025.00 (silver) in one dollar, fifty, twenty, ten, and five cent pieces. Figures regarding the respective amounts of these different denominations have not been obtainable. No gold has been coined in Manchuria. No figures are available for the output of the mints these last two years. The coinage of copper coins has been discontinued, and a large amount of small silver coins of 20 and 10 cent denomination have been issued.

Telephones.—At Mukden there are two telephone services, the public exchange operated by Japanese and the Chinese official line connecting the various yamens, police offices and government bureaus. The two systems are connected.

The Japanese have a long distance service along the railway lines from Dalny to Kwangchungtze, with a branch to Newchwang and a second between Mukden and Antung. Instruments are also in use at Liaoyang, Tiehling, Antung, and Tatungkou having in all of these places been originally installed by the Japanese military authorities. The Chinese, however, have appreciated the advantage of this method of communication and propose to control their own lines and to instal systems in Kirin and Kuangchengtzu. A similar system is in operation in Harbin and the nearby stations.

TEA EXPORTS FROM CHINA

The following information concerning the foreign tea trade of China is furnished by Consul Ernest Vollmer, of Tsingtau:

The United States, including Hawaii, is, with the single exception of Russia, the largest tea purchaser China has.

From figures of the Chinese customs service it is noted that the exports of tea to the Pacific ports of Russia are over three times the amount exported of tea from China to the United States, while a quantity equal to the purchases of the United States finds its way overland into Siberia, and another lot, of almost the same size, goes by water to ports in European Russia. Thus Russia consumes, roughly, five times the quantity of Chinese tea consumed in the United States. It must be remembered, on the other hand, that Formosa, Ceylon, and Indian teas are taken by the United States in a larger proportion than they are by Russia.

The following statement shows the exports of tea from China during the years 1906 and 1907, the exports for the latter year being the largest in a decade, save the years 1899 and 1903:

Description.	1906	1907
	Pounds.	*Pounds.*
Black	89,735,408	105,768,768
Green	30,900,912	39,543,728
Tablet	1,389,808	1,602,160
Dust	39,088	3,299,520
Brick	87,617,936	90,231,120
Total	209,683,152	240,445,296

GERMAN ENTERPRISE IN MANCHURIA

The desire evinced by substantial German firms to extend their sphere of activity to Manchuria, was manifested by the establishment of a German Consulate at Mukden, and a sub office at Newchwang.

Although foreigners generally have shown little disposition to open agencies in the interior, and by personal investigation acquaint themselves with Manchurian conditions, the German merchants are apparently fully alive to the opportunities which this region affords, for large import and export houses, having connections in China, Japan, and Korea, have opened offices at Newchwang, and are preparing to compete for the inland trade.

Of these, Arnhold Karberg and Company, and Meyer and Company, deal extensively in piece goods and machinery. The head of the latter house, who is President of the Hamburg Board of Trade, made a careful survey of the situation, and was convinced that the prospects for development were extremely bright. His firm, which has a special department for the sale of American goods, has offices at Antung as well as Newchwang, and maintain native branches elsewhere, under personal supervision of the manager of the latter place. Chinese connected with Arnhold Karberg & Co. are already established at Mukden, and this company with Carlowitz and Company, Mandel and Company, and Bielfeld and Sun, a German-Chinese organization, has resident "compradores" at Kirin and Kuangchengtzu (Changchun) as well. These agents watch the markets and advise their employers regarding prospective sales. The firms also have in their service engineers who are competent to demonstrate the operation of machinery or artillery, or to install a plant, as the need may arise, and who are despatched to those places where their knowledge may be useful, or where a buyer may be found.

The representatives particularly of these companies engaged in what is known as "Government business," i. e., the sale of arms, ammunition, military equipment, and machinery of various sorts to the provincial Governments, maintain intimate relations with the officials, and through the connection thus established secure the larger portion of their orders.

Last year, the firm of Mandel and Company sold twelve 7.5 Krupp and two 5.7 Cruzen guns with 600 rounds of ammunition each, and Bielfeld and Sun have supplied several engines for the local mint as well as a ten steam roller to the Viceroy.

The Viceroy recently ordered an electric-light plant for the lighting of the Mukden City, through a German firm. The plant is to be installed in the mint. Orders for three more road rollers have also been placed.

The German firm of Telge & Schoeter of Tientsin are constructing an 18-mile railway, connecting the Chinese Eastern Railway with Tsitsihar, the capital of Heilungkiang Province. This road is being built by the Governor of the province out of the revenues. The same firm has also secured several other contracts.

The Germans have adopted methods which must in the end bring them a monopoly of this business, and they deserve the rewards for their labors. Nearly all the German firms are liberal in their ideas of trade, and sell American or British machinery where there is a demand for it. Probably one-half of the American machinery sold in China to-day is placed through German firms. American firms seem to take little interest in developing the market. The Germans and Britishers advertise extensively and wisely, and cultivate the acquaintance of the authorities who place large contracts, while the American agents seem to think that the business must come to them unsought. The advertising pages of the Far Eastern Review are a testimonial to the far sighted policy of the British and German firms, who are most successful in machinery and engineering lines.

MINES AND MINERALS IN MANCHURIA

Mineral Wealth of the Yalu Region.—South-eastern Shengking is reported to be unusually rich in minerals. The mountains contain abundant deposits of coal, iron, copper, lead, silver, and gold. The working of all these deposits has for a long time been more or less regularly carried on by the natives, their methods, however, are of the crudest and the output consequently small.

Granite of excellent quality is also quarried, but as yet it has been little utilized except for local purposes, owing to lack of transportation facilities.

The coal thus far unearthed has been found to be of a superior grade and its utilization only awaits capital and the means of bringing it to the market. One of the largest carboniferous beds discovered in this region and till recently scarcely touched lies near Penshihu (Honkeiko), an important station on the Antung-Mukden Railway. Its development on a somewhat extensive scale was first undertaken by the Chinese in the latter part of 1903, with the result that some fourteen pits were opened. There is another large bed of coal at Niutan, a short distance to the southeast, where about 1,000 coolies were formerly employed in digging, most of the output being sold to the Russians.

The Okuragumi, a Japanese Company which constructed part of the Antung-Mukden Railway, obtained permission from the Chinese Government to work a mine near Penshihu. They have hardly commenced operations, the entire output thus far not exceeding 300 tons, but intend at an early date to place some 200,000 yen ($100,000) into the construction of shafts and other improvements. The coal is said to be of the best quality, and that taken out so far has been sold to the Japanese Government for use at its iron foundries. The Okuragumi originally planned to establish a gas plant at Mukden to utilize this coal, but the project has apparently been abandoned.

Silver has been found chiefly at Antung and Fenghuangcheng near the Yalu River, and was at one time mined by the Chinese, but the work was abandoned owing to the large lawless element which existed among the coolies and which made operation both unsafe and unprofitable.

Thus far the iron wealth seems practically to have lain untouched. Desultory attempts have been made by the Chinese to utilize it, but the limited returns on the capital invested, the fault of crude methods, as well as the difficulty of bringing the product to market, have made it impossible to compete with the old iron entering the country from Newchwang.

Most of the minerals named are said to be present in large and paying quantities, and their utilization only awaits a cheaper and quicker avenue to the sphere of demand.

There are many rich placers in the eastern portion of Kirin Province, in the streams that form the Sungari and Tiumen Rivers, though no report concerning the natural features of the district appears to have been published since 1887.

Recent articles in the Japanese Press, however, corroborate the earlier information that the district is particularly rich in minerals, but there are no mines at present using machinery.

NORTHERH MANCHURIA.—The northern part of Manchuria abounds in minerals, principally gold, both quartz and placer, silver, copper, lead, and iron. Thus far the average annual output has amounted to $10,000,000 gold, some of the mines being operated by the Chinese officials but most of them by native companies and small capitalists. However, a large part of the deposits has not yet been touched.

(1) Gold exists in both quartz and placer form. The deposits thus far discovered are as follows:

GOLD QUARTZ.

At Ta-miao-kou, about 15 miles* south of Tung-hua.

At Wei-sha-ho, about 60 miles west of Tung-hua.

* Chinese mile (a third of an Eng. mile.)

At Pao-ma-chuan, 20 miles west of Wei-sha-ho.

At Ta-li-shu-kou, on the eastern shore of the Hunho.

At Fu-erh-chiang, between Huai-jen (Ninguta) and Tung-hua.

At San-ho-ting, at the junction of the Tai-ping-tan-ping-ho and San-tung-ho Rivers.

At Ta-iping-tan, on the northern bank of the Tai-ping-tan-ping-ho.

At Lint-zu-tou, on the northern bank of the Yalu River about 20 miles east of Tung-hua.

At Pao-chu-chuan, on the northern bank of the Yalu River 60 miles east of Lin-tzu-tou.

At Lao-hei-san, about 100 miles south-east of Ninguta.

At Kun-ma-ling, 15 miles east of Laohai-san.

PLACER GOLD.

At Tung-tien-kou, 80 miles west of Tung-hua.

At Kang-san-erh-tao-kou, 10 miles south of Tung-tien-kou.

At Mao-erh-san-tou-tao-kou, north of the Yalu River and south of Pao-chu-chuan.

At Mao-erh-san-erh-tao-kou, on the north bank of the Yalu River.

At Mao-erh-san-tao-kou, on the north bank of the Yalu River.

At Hai-shin-tou, 40 miles south of Hai-lung-san-cheng-tzu.

At Chao-yang-kou, 30 miles east of Chao-yang-chen.

At Tiao-lo-kou, east of Chang-yang-chen.

SILVER DEPOSITS.

At Pao-wang-tsao, about 20 miles west of Tung-hua Pao-ma-chuan. o

At Hsiao-tan-ping, on the north bank of the Hsiao-tan-ping-ho.

At Mao-erh-san Szu-tao-kou, on the north bank of the Yalu River.

At Liang-shui-chuan-tzu, at the source of the Tai-tzu-ho.

At Tien-pao-san, near Hun-chun, Kirin.

COAL.

Besides the well-known mines at Fushun and Yentai, coal deposits are found at the following places:

At the Pan-chien-ho, on the upper Wo-chi-ho.

At Hsien-jen-kou, on the bank of the Itung-ho southwest of Hai-lung.

At Szu-tao-chien, at Tung-hua on the north bank of the Hun-ho.

At Wu-tao-chiang, on the north bank of the Hun-ho near Szu-tao-chiang.

At Lao-yen-ling San-tao-kou, 40 miles north-east of Kun-tung-ling.

At Shang-shui-ho, near Tung-hua.

At Kuai-mo-tzu, 25 miles southeast of Shang-shui-ho.

At Hsiang-lu-wan, 35 miles southeast of Hai-lung-cheng-tzu.

IRON.

Although the methods employed in iron mining are crude, the annual output is considerable.

At Mao-erh-san Liu-tao-kou, on the northern bank of the Yalu River.

At Ta-li-tzu-kou, on the northern bank of the Yalu River.

At Chao-yangkou, 30 miles east of Chao-yang-chen.

At Ti-ao-lo-kou, 10 miles east of Chao-yang-kou.

ASBESTOS DEPOSITS.

At Tai-ya-ho, southwest of Ninguta on the southern bank of the Ya-ho.

Hsiao-ya-ho, 40 miles south of Tai-ya-ho.

COPPER, LEAD AND SILVER DEPOSIT.

At Mu-shi-cha, 30 miles east of Hai-lung-Shang-sun-kan.

Besides the above-named deposits, the territory drained by the Huia-ho and to the north of that river is exceedingly rich in gold, both quartz and placer, silver, lead, copper and coal. This is true also of the district to the east of the Sungari River. This mineral wealth is made accessible by the Yalu, Sungari, Nenchiang, Hailungchiang and Liao Rivers and their tributaries. The construction of the Changchun-Kirin Railway will also greatly facilitate its development. The mines at present operated by the Chinese, either officials or private persons, are as follows: Kang-san-erh-tao-kou (gold), Tien-pao-san (copper), Ta-lin-tzu and Chia-pi-kou to the east of the Sungari River (gold), and Tung-cha-kou and Hsi-cha-kou (Placer gold).

The operation of the mine at Tien-pao-san was about to be undertaken by Americans, but the project was abandoned on account of the outbreak of the Russo-Japanese war. The Viceroy of Kirin then canceled their claim and the mine is now being operated by the Bureau of Mines with Chinese capital. The same is true of the gold mine at Chia-pi-kou, which was originally operated by the Russian Government, 20,000 coolies being employed, but is now in the hands of Chinese.

The fact that the mining industry has not developed to a greater extent in Manchuria may be attributed to the interference of the Hung-hut-zu or bandits. As soon as these bandits are suppressed and operations can be carried on with a fair degree of safety, there is no doubt that the Chinese will begin a vigorous prosecution of this industry.

NORTHWESTERN MANCHURIA AND MONGOLIA.—According to information apparently trustworthy there are large deposits of gold, silver, soda, and coal, with a plentiful supply of timber, in the area between the headwaters of the Liao and the Taluho, a branch of the Amur, about 200 miles from the terminus of the China Eastern Railroad at Hsimintun. Japanese and Russian prospectors have visited this region and made reports.

SOUTHERN MANCHURIA.—The following is a digest of the mines located in the various districts of Shengking, under the jurisdiction of the Bureau of Mines, Mukden, Manchuria.

Mines being worked in Liaoyang District:—Wei Ming Shan: Coal, N. East 60 Li off Liaoyang, 32 Li South Manchuria Railway. Worked since 1902 by Central Government.

Ta Yu Kou: Coal, N. East 60 Li from Liaoyang, 32 Li off South Manchuria Railway. Worked since 1902 by Central Government.

Pa Ho Tung: Coal, East 220 Li off Liaoyang. Worked since 1907 by private parties.

Kang Chia Tung Kou: Placer Gold, S. East 90 Li off Liaoyang. Worked since 1907 by private parties.

Chiang Chia Kou: Coal, N. East 60 Li off Liaoyang. Worked since 1907 by private parties.

Hung Ling Kou: Coal, S. East 90 Li off Liaoyang. Worked since 1906 by private parties.

Kang Yao Tsun: Coal, N. East 90 Li off Liaoyang. Worked since 1907 by private parties.

Unopened Mines in Liaoyang District:—Hsiao Liu Chia Yu, Copper, N. East 70 Li off Liaoyang.

Chi Kua Fu Kou, Placer Gold, S. East 220 Li off Liaoyang.

Shang Wsia Wan Ho, Placer Gold, South 240 Li off Liaoyang.

Chi Chao Shan, Placer Gold, South 280 Li off Liaoyang.

Hua Yen Szu, Coal, N. East 80 Li off Liaoyang.

Huang Pu, Coal, N. East 60 Li off Liaoyang

Liu Tao Ho, Placer Gold, South 220 Li off. Liaoyang.

Hei Chia Tai, Placer Gold, S. East 240 Li off Liaoyang.

Sang Chia Tai, Placer Gold, S. East 240 Li off Liaoyang.

Sha Chin Kou, Placer Gold, S. East 240 Li off Liaoyang.

Han Po Ling, Coal, East 75 Li off Liaoyang.

Tai Tzu Kou, Coal, East 15 Li off Liaoyang.

Mines Being Worked in Pen Chi District:—Wang Kan Kou: Placer Gold, East 30 Li off the town of Pen Chi, 1 Li off Antung-Mukden Railway. Worked since 1907 by private parties.

Pen Chi Hu: Coal, East 1 Li off Pen Chi, 1 Li off Antung-Mukden Railway, occupied by Japanese and will, in future, be worked jointly by Chinese and Japanese.

Sai Ma Chi: Coal, S. East—210 Li off Pen Chi. Worked by natives.

Unopened Mines in Pen Chi District:—Niu Hsin Tai: Coal, East 30 Li off the town of Pen Chi.

Yao Tzu Yu: Coal, South 50 Li off Pen Chi.

Cheng Chia Ta Kou: Copper, N. West 70 Li off Pen Chi.

Lien Shan Kwan: Gold, Silver, Platinum and Asbestos, South 110 Li off Pen Chi. ½ Li off Antung-Mukden Railway.

Tsao Ho Chang: Gold, S. East 80 Li off Pen Chi, 80 Li off Antung-Mukden Railway.

Ping Shan Kou: Gold and Lead, S. East 20 Li off Pen Chi, 20 Li off Antung-Mukden Railway.

Ta Yu You: Silver and Lead, S. East 20 Li off Pen Chi, 15 Li off Antung-Mukden Railway.

Chien Chia Tzu: Limestone, S. East 30 Li off Pen Chi, 30 Li off Antung-Mukden Railway.

Huang Pai Yu: Coal, North 15 Li off Pen Chi, 25 Li off Antung-Mukden Railway.

Liu Shu Pai Tzu: Coal, East 25 Li off Pen Chi.

Li Shu Kou: Coal, N. West 280 Li off Pen Chi.

Unopened Mines in Hai Cheng District:—Pai Lou Tun: Placer Gold, N. East 30 Li off Hai Cheng.

Ying Wo: Placer Gold, N. East 30 Li off Hai Cheng.

Nan Yang Kou: Placer Gold.

An Lu Kou: Placer Gold.

Ta Tai Kou: Placer Gold.

Pan Kou: Placer Gold.

Hua Erh Yu: Placer Gold, South 30 Li off Hai Cheng.

Feng Chia Kou: Placer Gold, South 30 Li off Hai Cheng

Shih Men Ling: Gold, 20 Li off Hai Cheng.

Ta Kan Tzu: Placer Gold, East 20 Li off Hai Cheng.

Li Shu Kou: Placer Gold, S. East 20 Li off Hai Cheng.

Shih Shih Sun: Placer Gold.

Pai Shih Chai: Placer Gold, N. East 50 Li off Hai Cheng.

Tu Niu Tun: Placer Gold, East 30 Li off Hai Cheng.

Shung Shu Kou: Placer Gold, S. East 30 Li off Hai Cheng.

Unopened Mines in Fu Chou District:—Wu Hu Chui: Coal, South 40 Li off Fu Chou.

Kwan Chia Tun: Lead, North 80 Li off Fu Chou.

Mines Being Worked in Hsing Jen District:—I Lu: Coal, North 80 Li off Hsing Jen.

Chien Shan Tai: Coal, East 90 Li off Hsing Jen.

Mines Being Worked in Tiehling District:—Chai Ho Pu: Placer Gold, S. East 60 Li off Tiehling. Worked since by natives.

Pa Chai Tzu: Placer Gold, S. East 60 Li off Tiehling. Worked since 1906 by natives.

Mu Yang Cheng: Placer Gold, S. East 60 Li off Tiehling (work suspended).

Ping Shih Men: Placer Gold, S. East 60 Li off Tiehling (work suspended).

Ta Tai Shan: Coal, West 60 Li off Tiehling. Worked by private parties.

Mines Being Worked in Kaiyuan District:—Ta Hu Chuang: Coal, S. East 220 Li off Kaiyuan. Worked since 1907 by private parties.

Unopened Mines in Kaiyuan District:—Hsiang Ya Shan: Copper, 40 Li off Kaiyuan, 35 Li off South Manchuria Railway.

Kwan Men Shan: Lead, S. East off Kaiyuan.

Yang Mu Lin Tzu: Lead, S. East 220 Li off Kaiyuan.

Pin Niu Tun: Coal, South 30 Li off Kaiyuan.

Ying O Men: Coal, N. East 30 Li off Kaiyuan.

Sha Ho Kou: Coal, S. East 60 Li off Kaiyuan.

Mines Being Worked in Fakumen District:—Chui Chia Kou: Coal, N. East 35 Li off Fakumen. Worked since 1907 by private parties.

Unopened Mines in Kaiping District:—Shan Shu Shan: Gold, S. East 80 Li off Kaiping; Silver, S. East 90 Li off Kaiping.

Huang An Kou Pei Cha: Lead, S. East 60 Li off Kaiping.

Mines Being Worked in Chinhsi District:—Pai Yang Mu Kou: Coal, West 40 Li off Chinhsi. Worked since 1907 by private parties.

Tang Shih Kou: Coal, N. East 50 Li off Chinhsi. Worked by private parties.

Ta Yao Kou: Coal. Worked by private parties.

Tsa Shu Kou: Coal, West 40 Li off Chinhsi. Worked since 1906 by private parties.

Chien Shan Tzu: Coal, N. East 70 Li off Chinhsi. Worked by private parties.

Unopened Mines in Chinhsi District:—Kang Yao Tun: Coal, West 50 Li off Chinhsi.

Wang Pao Kai: Coal, N. East 80 Li off Chinhsi, 80 Li off Peking-Mukden Railway.

Hsiao Szu: Coal, N. East 18 Li off Chinhsi.

Nan Yang Tzu: Coal, N. East 60 Li off Chinhsi, 80 Li off Peking-Mukden Railway.

Nuan Chih Tang: Coal, N. East 70 Li off Chinhsi.

Hei Yu Kou: Coal, West 40 Li off Chinhsi, 50 Li off Peking-Mukden Railway.

Sha Kuo Tun: Coal, N. West 90 Li off Chinhsi.

Hsiao Tien Tun: Coal, N. East 12 Li off Chinhsi.

Erh Fo Miao: Coal, N. East 60 Li off Chinhsi.

Mines Being Worked in Ningyuan District:—Tou Tao Kou: Coal, West 45 Li off Ningyuan. Worked since 1906 by private parties.

Chien Shan Tzu: Coal, North 50 Li off Ningyuan. Worked since 1907 by private parties.

Pien Tao Tzu: Coal, North 50 Li off Ningyuan. Worked since 1907 by private parties.

Unopened Mines in Ningyuan District:—Mai Tzu Kou: Coal, S. East 60 Li off Ningyuan.

Han Kou: Coal, N. West 70 Li off Ningyuan.

Mei Sao Shan: Coal, S. West 140 Li off Ningyuan.

Fu Kou: Coal, N. West 50 Li off Ningyuan.

Chia Shan: Gold, N. West 60 Li off Ningyuan.

Mines Being Worked in I Chou District:—Pei Ta Ping: Coal, S. West 90 Li off Ichou. Worked by private parties.

Kang Yao Kou: Coal, N. West 90 Li off Ichou. Worked by private parties.

Unopened Mines in Chenan District:—Ka La Mu Tun: Cornelian, N. West 80 Li off Chenan.

Ying Ching Tzu: Cornelian, N. West 70 Li off Chenan.

Huo Shih Ling: Cornelian, 80 Li off Chenan.

Mines in Taonan Prefecture already suspended from work.—Na Chin Ho: Gold, North 120 Li off Taonan.

Yeh Ma Tu: Gold, North 110 Li off Taonan

Tu Erh Chi: Coal, N. West 160 Li off Taonan.

Erh Lung So Kou: Coal, N. West 160 Li off Taonan.

Mines Being Worked in Hailung Prefecture:—Sha Sung Kang: Coal, S. East 90 Li off Hailung. Worked by private parties.

An Tzu Ho: Iron, S. East 105 Li off Hailung. Worked by private parties.

Unopened Mines in Hailung Prefecture:—Ta Ching Shui Kou: Gold, S. East 120 Li off Hailung

Ta Wan Kou: Coal, West 100 Li off Hailung.

Mines Ready for Work in Liu Ho District:—Pan Chieh Ho: Coal, N. West 150 Li off Liu Ho.

Hung Chi Kan Kou: Coal, S. East 40 Li off Liu Ho.

Mines Being Worked in Tungping District:—Hsiao Li Shu Kou: Coal, West 90 Li off Tungping. Worked by private parties.

Unopened Mines in Hsian District:—Liao Ho Yuan: Coal, S. East 30 Li off Hsian.

Mines in Hsifeng District on which work has been suspended.—Hsing Lung Kou: Coal, S. East 30 Li off Hsifeng.

Unopened Mines in Hsifeng District:—Shuang Chiao Tzu: Coal, East 30 Li off Hsifeng.

Hsiao Kou Ho: Coal, S. East 40 Li off Hsifeng.

Unopened Mines in Feng Huang Cheng District.—Hsiung Ti Shan: Placer Gold, North 130 Li off Feng Huang Cheng.

Huang Kou: Coal.

Unopened Mines in Antung District:—Tang Chih: Placer Gold, S. East 40 Li off Antung.

Tung Kung Ling: Copper, S. East 35 Li off Antung.

Chieh Li Shu: Copper, S. East off Antung.

Ta Sha Ho Tzu: Placer Gold, East 8 Li off Antung.

Mines Being Worked in Kuan Tien District:—Tuan Tien: Asbestos, S. East 30 Li off Tuan Tien.

Unopened Mines in Kuan Tien District.—Pu Shih Ho: Coal, South 120 Li off Kuan Tien.

Pei La Tzu: Gold, East 160 Li off Kuan Tien.

Ta Pu Ta Yuan: Copper, N. East 130 Li off Kuan Tien.

Hsiao Lou Ho: Gold, East 200 Li off Kuan Tien.

Hsiao Pu Ta Yuan: Copper, East 190 Li off Kuan Tien.

Ku Lou Tzu: Placer Gold, S. East 130 Li off Kuan Tien.

Wang Pao Kai: Placer Gold, East 300 Li off Kuan Tien.

Hei Hsia Tzu Kou: Antimony, East 100 Li off Kuan Tien.

Mines in Hsiu Yen District on which work has been suspended.—Lo Chia Hsi Kou: Coal, East 30 Li off Hsiu Yen.

Ta Ping Ling: Coal, N. West 50 Li off Hsiu Yen.

Hsi Shang Po: Coal, S. East 120 Li off Hsiu Yen.

Hsiang Lu Kou: Placer Gold, W. East 180 Li off Hsiu Yen.

Hsi Yu Kou: Jade Stone, N. West 70 Li off Hsiu Yen.

Mines Being Worked in Hsing Ching District.—Ma Chia Tzu: Coal, 160 Li off Hsing Ching. Worked by private parties.

Shih Men Tzu: Coal, East 220 off Hsing Ching. Worked by private parties.

Kao Li Kou: Coal, East 160 Li off Hsing Ching. Worked by private parties.

Feng Mi Kou: Coal, S. East 35 Li off Hsing Ching. Worked by private partes.

Ta Lien Tsui Tzu: Coal, West 220 Li off Hsing Ching. Worked by private parties.

Lung Feng Kan: Coal, N. West 180 Li off Hsing Ching. Worked by private parties.

Tu Kou Tzu: Coal, West 180 Li off Hsing Ching. Worked by private parties.

Unopened Mines in Hsing Ching District.—Chang Hu Huo Lo: Placer Gold, N. East 30 Li off Hsing Ching.

Tung Mu Chiang Kou: Coal, West 200 Li off Hsing Ching.

Nan Chia Ho: Placer Gold, S. West 140 Li off Hsing Ching.

Pa Pao Kou: Placer Gold, S. West 150 Li off Hsing Ching.

Ta Hsiao Tung Kou: Iron & Coal, S.W. 100 Li off Hsing Ching.

Shih Miao Tzu Kou: Placer Gold, S. West 80 Li off Hsing Ching.

Mines Being Worked in Hsai Jen District.—Shih Hui Lao Tzu: Coal, South 90 Li off Huai Jen. Worked by private parties.

Szu Ping Chieh: Coal, West 180 Li off Hsai Jen. Worked by private parties.

Unopened Mines in Hsai Jen District.—Lao Ying Kou: Lead, South 120 Li off Hsai Jen.

Lao Hei Shan: Gold, S. East 120 Li off Hsai Jen.

Shang Lou Ho: Coal, 70 Li off Hsai Jen.

Mines Being Worked in Lin Kang District.—San Cha Tzu: Coal, West 160 Li off Lin Kang. Worked by private parties.

Unopened Mines in Lin Kang District.—Pao Tu Chuan: Gold, East 80 Li off Lin Kang.

San Wu Tao Yang Cha: Gold, West 30 Li off Lin Kang.

Liu Tao Kou: Copper, N. East 180 Li off Lin Kang.

Ta Li Tzu Kou: Iron, N. West 50 Li off Lin Kang.

San Tao Kou: Gold, S. East 15 Li off Lin Kang.

Mines Being Worked in Tseih An District.—Pao Ma Chuan: Gold, N. West 170 Li off Tseih An.

Mines Being Worked in Tung Hua District.—Wu Tao Kou: Coal, East 80 Li off Tung hua. Worked by private parties.

Ta Lo Chuan Kou: Coal, S. East 60 Li off Tung Hua. Worked by private parties.

Lo Chuan San Tao Kou: Iron, East 70 Li off Tung Hua. Worked by private parties.

Szu Tao Kang: Coal, S. East 60 Li off Tung Hua. Worked by private parties.

Ta Miao Kuo: Gold, East 30 Li off Tung Hua. Worked by private parties.

Erh Tao Kou: Placer Gold, East 30 Li off Tung Hua. Worked by private parties.

Unopened Mines in Tung Hua District.—Hsiao Miao Kou.—Silver, West 18 Li off Tung Hua.

AGRICULTURE IN MANCHURIA

By FREDERICK D. CLOUD*

[Agriculture is the main stay of Manchuria, but statistics and reliable data on the subject have been hitherto almost impossible to secure. The Governor of Mukden, H. E. Tang Shao Yi, recognizing the great importance of assisting the farming element and increasing the production of the various staples, determined to enlist the services of American agricultural experts to open agricultural schools and experiment stations throughout the Three Eastern Provinces.

A large Agricultural College and Experiment station had already been established at Mukden, under the supervision of Japanese experts paid by the Viceroy. This institution received an annual appropriation of 50,000 taels, which should have been sufficient for the needs of the province if properly conducted. Whether Governor Tang realized that Japanese experts were not familiar with farming on an extensive scale, or whether he intended to play politics by pitting Americans against Japanese is open to conjecture. Through the American Consul General Straight, the Mukden Government secured the services of two high grade American agricultural experts, Mr. Edward C. Parker and Mr. W. H. Tomhave, graduates of the University of Minnesota, under contract for a term of years to open a college and experiment farms. These men, from their experience in the Great Northwest wheat region and beet sugar districts, are well qualified for the work in Manchuria, as the soil, climate and general conditions are similar.

These men arrived at Mukden after the departure of H. E. Tang Shao Yi on the special embassy to the United States, and up to the present have been unable to make much progress owing to his absence. Naturally the Japanese resent the presence of the American experts and have tried to undermine their work. This is a natural feeling under the circumstances.

The American experts spent two months traveling throughout the farming districts of Manchuria, and on their return submitted a most comprehensive report on their observations, which is probably the first intelligent information published on the important subject.

The American Vice-Consul General, Frederick D. Cloud, at Mukden has also been collecting reliable data on agriculture and the following report, cover the subject fully.—ED.]

Reports from all quarters indicate that the year 1908 has been an unusually prosperous one for Manchurian farmers. Especially is this true as regards the farmers of Shengking Province where the crop yield is stated to be 20 per cent greater than the average annual yield. The general range of prices for all farm products is, also, somewhat above the average, to the great delight and profit of the agricultural classes.

The Government of this province has supplied me with a few statistics which I have converted into American values, enlarged from independent sources of information and arranged in a manner that may be of some value to those interested in the present and future of Manchuria as a market for foreign imports. The Manchurian Government is making a serious effort to inaugurate a system for the compilation of vital statistics of all kinds, and the following statistics are based on data furnished by its new Bureau of Statistics.

According to these statistics, therefore, the total population of Shengking (Fengtien) Province is 10,312,211, of which number 2,520,145 are engaged in agriculture. This population, stated by district (magistracy) and city or town, is distributed as follows:

Total Population and People Engaged in Agriculture of Shengking Province:—

Name of Districts.	*Population.*	*No. of People engaged in Agriculture.*
Chengte-Hsien........ Hsingjen-Hsien....... }	651,887	153,402
Liaoyang-Chou........	664,897	111,235
Tiehling-Hsien..........	370,353	94,850
Kaiyuan-Hsien	250,186	62,540
Liaochung-Hsien........	335,529	84,726
Penchi-Hsien...........	217,835	42,214
Haicheng-Hsien.........	586,331	125,379
Kaiping-Hsien..........	455,555	84,312
Fu-Chou...............	372,273	167,540
Chinchou-Tin...........	333,210	55,823
Yinkou-Tin............	35,635	473
Hsinmin-Fu.	333,703	81,673
Changwu-Hsien	93,732	27,408
Chenan-Hsien..........	333,238	66,612
Chin-Hsien..	299,314	59,862
Ningyuan-Chou.........	121,612	24,324
Kuangning-Hsien.......	176,614	35,322
I-Chou................	121,480	24,311
Suichung-Hsien	366,316	73,551
Chinhsi-Tin............	140,238	28,047
Panshan-Tin	150,965	40,256
Changtu-Fu............	407,583	169,192
Weite-Hsien...........	209,256	48,489
Fenghua-Hsien	345,670	70,378
Kangping-Hsien........	174,306	69,440
Liaoyuan-Chou	54,603	6,671
Tungchiang-Tin..	6,305	174
Fakumen..............	239,888	48,532
Heilung-Fu............	217,729	36,235
Tungping-Hsien..	131,219	42,817
Hsian-Hsien............	170,806	66,130
Hsifeng-Hsien	176,466	57,648
Liuho-Hsien	71,328	18,232
Yaoan-Fu..............	27,888	4,755
Hsunan-Hsien..........	19,164	4,084
Kaitung-Hsien..........	16,139	5,350
Ankuang-Hsien.........	9,710	3,342
Hsingking-Tin..........	232,811	53,500
Tunghau-Hsien.........	89,115	33,312
Weijen-Hsien...........	149,405	29,881
Linchaing-Hsien........	11,284	2,180
Tseihan-Hsien..........	48,317	15,800
Fengwang-Tin..........	334,251	97,550
Sewmin-Chou..........	162,995	47,507
Kuanhsun-Hsien........	176,018	57,980
Antung-Hsien..........	113,262	26,963
Chuangho-Tin.	305,820	60,143
	10,312,241	2,520,145

*American Vice-Consul in charge at Mukden.

Acreage under Cultivation.—The total area of the province under cultivation is 4,333,333 acres, that is, there are 1.72 acres of tilled land per capita of the farming population. This of course does not mean that the average sized farm contains only 1.72 acres, for it is well known that farming is carried on in many cases by the family or clan which may contain from five to fifty people who work together on one common farm, sharing the proceeds according to their own private arrangements. Such a farm might and often does comprise a hundred or more acres. No accurate data is available as to the average size of a Southern Manchurian farm, but it is not far wrong to put it at 12 acres. This would make the average rural family number 7 persons, which is approximately correct.

Land Tenure.—Freeholding is the rule throughout Fengtien province, but there is also considerable tenancy, the land being leased from (1) the Government, (2) Manchu princes and (3) Lama priests. In the case of Government lands, the terms of lease are such as to make the tenants virtual owners, the leases being in perpetuity and the tenant having to pay only a very nominal annual rental. To this class of land belong the large tracts of "Banner Land" set aside in times gone by for the use and maintenance of soldiers' families. These soldiers belonged to regiments or corps known as "Banner Corps," hence the term "Banner Land." Likewise, in the case of large tracts owned by the Manchu nobility, leases are given in perpetuity, but for this class of land the tenant must pay a higher rental than for Government land. Land owned by the Lama priesthood, of which there is a considerable amount scattered throughout the province, is leased on long or short terms, and the rental paid therefor is usually the highest paid for any land. The rental on Lama land ranges from 6 to 15 bushels (1 bushel equals 60 lbs.) of beans to the acre, which at present prices and exchange would amount to $3.30 to $8.25 per acre.

Grain.—The following Table shows the principal varieties of grain produced, together with beans, and the value and production per acre of the different crops, viz:

Name.	Average Production per Acre.	Average Value per Acre.	Average Value per English bushel of 60 lbs.
		U.S. Gold $	U.S. Gold $
Kaoliang	Bushels 35.3	11.95	0.34
Beans	,, 31.6	17.35	0.55
Wheat	,, 23.3	16.49	0.71
Maize (Corn)	,, 23.3	7.89	0.34
Barley	,, 28.0	12.48	0.44
Millet	,, 20.3	9.31	0.44

The following Table indicates the approximate acreage devoted to each crop, together with the total amount produced of each and the approximate total values thereof, viz:

Name.	Approximate Acreage per Annum	Approximate Total Production. One Bushel = 60 lbs.	Approximate Total Value per Annum.
Kaoliang	2,166,666	76,526,643	$26,019,059
Beans	1,300,000	40,716,000	22,393,800
Millet	433,333	9,099,993	4,003,997
Wheat, Barley, Maize, Tobacco, Garden Truck, etc.	433,334	....	3,900,006
	4,333,333		56,316,862

Kaoliang.—As shown by the above table *kaoliang* (Sorghum Vulgare, Pers. Barbadoes Millet) is the most extensively grown and the most valuable crop, while the Soy-bean is second. *Kaoliang* is the food staple of Manchuria, and bears the same relative value in the food economy of Manchurians that rice does in that of southern Chinese, or wheat in that of the Anglo-Saxon. Its uses are manifold. Besides furnishing the greater portion of the Manchurian's daily food, it supplies an alcoholic drink, thatching for houses and barns, matting for summer sheds, and winter floors, wind-breaks to shield the farmer's household from the icy blasts of winter, and fuel to cook his food and warm his house. No part of the *kaoliang* plant is allowed to go to waste. Even the stubble and roots are carefully pulled up, dried and put away for fuel. The green blades also are gathered just before the grain is fully ripe, tied in bundles and stored for winter fodder for the donkeys and cattle.

A *kaoliang* field, after the crop has been harvested, is absolutely bare, there being nothing left of the vegetation to reenter the soil, and herein lies the chief, and practically the only objection to the continuous cropping of *kaoliang*. It requires much from the soil, but gives back nothing in return.

The Soy-bean.—The soy-bean on the other hand is a good soil fertilizer and is extensively grown throughout the province, especially in the rich valley of the Liao river. The bean is the greatest of all export crops from Manchuria and can always be relied upon to afford the farmer ready cash. Bean oil is used throughout China for culinary purposes being employed as lard is used in American households, while the residue after the oil has been expressed (Bean-cake) is exported mostly to Japan where it is used for fertilizer. The exports of bean-cake from China during 1907 amounted to 278,801 tons and was valued at $7,300,000 in U. S. currency, or $26.18 per ton of 2,000 pounds. During the same period there were in addition 89,124 tons of beans exported, valued at $2,560,790 or at the rate of $28.73 per ton. The total value of China's bean crop exports for the year 1907 was, therefore, $9,860,790, the greater part of which was produced in Southern Manchuria.

Manchuria has a great advantage over most other agricultural regions, in that the soy-bean can be grown most successfully throughout the entire region, from Dalny on the south to Harbin in the north. In the United States, on the other hand, this crop is not grown with much success, outside of what is known as the "cotton belt."

Millet.—The crop that ranks third in importance, in the province, is millet, of which there are several varieties. The best of these varieties are known as Japanese millet, and are grown mostly for human food. It is a hardy crop and highly valued by the farmer for home consumption, but little is produced for foreign export. The annual crop is valued at about $4,000,000.

Wheat.—The wheat crop of the province has not as yet become large, but is important in view of the growing tendency among all classes to replace the native cereal foods with wheaten cakes and bread. Thus far but little attention has been devoted to wheat growing, but with the advent of modern flour mills in Manchuria. of which there are several in operation and more being constructed, the native farmer is devoting his thought to wheat production. There is no reason, as far as soil and climate are concerned, why the province of Shengking should not produce vastly more than enough wheat for the consumption of its entire population. At present, the native farmer knows practically nothing about the proper selection of seed, or of the proper methods of cropping, harvesting and marketing of wheat. The flour mills now in operation complain very bitterly about the Manchurian farmer's methods of harvesting and marketing his wheat. The varieties of wheat grown and the quality of the berries are very fair, and would make a good medium grade flour, if the farmer would only care for his crop in the right way. But this, apparently, he will not do, for when the wheat comes to the mill, it is either musty, or weather bleached, or foul, from which it is impossible to make a good grade of flour.

Until, therefore, the Manchurian farmer gives more intelligent attention to the seeding, harvesting and marketing of his crop, wheat growing will remain practically where it is, and as a crop wheat will continue to be of minor importance.

Corn (Maize).—Corn is grown to some extent throughout the province, the Liao valley, to the east of Liaoyang, affording perhaps the greatest area devoted to this crop At present the crop is of but little value owing to defective methods of seed selection, planting and cultivation. The soil and the climate, however, of Southern Manchuria, especially throughout the fertile Liao valley, is without doubt naturally adapted to the abundant production of Indian corn The rich alluvial soil, together with the long, hot summer days, and warm nights, combined with copious showers of rain, constitutes ideal conditions for the successful production of corn. With good seed and intelligent cultivation, there is little doubt but that Indian corn could be made a more profitable crop to the farmer of Southern Manchuria, than is either *kaoliang* or the soy-bean.

Sugar Beet.—The loose, loamy soils of Manchuria are particularly well adapted to the growing in great abundance of all kinds of root crops, and is especially favorable for sugar beet production. The intense summer sunshine not only gives an abundant yield of roots, but produces a high percentage of sugar. Tests made last season at the local Experiment Farm showed amounts of sugar ranging from 14 to 18 per cent.

A large German beet sugar concern recently sent an expert from Germany to look into the possibilities of the best sugar industry in Manchuria. According to my information his report was most favorable, but whether or not the company contemplates the establishment of a factory in Manchuria is unknown. At Harbin, however, such a factory is being installed.

In view of the rapidly growing demand throughout China for refined sugar, there are undoubtedly great possibilities in the beet sugar industry in Manchuria.

Fruits.—There are but a few varieties of fruit grown in the province, among which the pear, grape, and persimmon are the most valuable. The pears are hard and watery, and while they are good keepers, lasting from season to season, they are not a good table pear. Grapes are grown extensively and are the most satisfactory of all the Manchurian fruits. There is, practically, but one variety of this fruit, which resembles the California red, wine grape. It is not a first class table grape, but as it can be kept through the winter and until spring, it is, as before stated, the most satisfactory of all the Manchurian fruits. The large red persimmon is also grown and is much prized by the Chinese. Because of its abundance, it is the cheapest of all the fruits and constitutes almost the sole fruit diet of the poor classes. Besides the fruits mentioned there are apples, peaches and plums of poor quality and of no great abundance. Apricots, also, of inferior quality are scatteringly grown among the hills in the southern part of the province.

The inhabitants of Manchuria are exceedingly fond of fruit, but curiously enough they seem to take little or no interest in fruit growing. If a tree grows up of its own accord and bears fruit, well and good, but to care for it and cultivate it along approved lines, the native has neither sufficient knowledge nor the disposition.

There is no doubt but that great quantities of excellent fruits could be grown in various parts of the province, if only intelligent methods of selection, budding and cultivation were employed. The striking success which has followed the efforts of American missionaries in Shantung province to improve native varieties of fruit by introducing scions from American fruits, is indeed worthy of emulation in Manchuria. The Chefoo apples, pears and grapes are now sold in nearly every treaty port in China and command prices second only to fruits imported from America.

Live Stock.—The following Table shows the principal kinds of live stock of the province, the approximate number and total values of each kind, and the average value per head:

Kind	Number	Value	Average Value per head.
Horses	124,008	$1,525,298.40	$12.30
Cattle	62,060	588,892.00	8.20
Mules	124,242	1,780,844.00	14.33
Hogs	1,925,260	4,736,139.60	2.46
Total	2,235,574	8,551,174.00	

In addition to those mentioned there are said to be upwards of 600,000 head of sheep and goats valued at about $1,026,148. So that the total value of the province's live stock is $9,577,-322. This is indeed a nominal figure in comparison to what it might be with consistent and intelligent breeding.

It is a well known fact that the Manchurian farmer, just as with fruits and grains, takes no pains and gives little thought to the breeding of his domestic animals. His hogs have the run of the farm, breed when they like, and subsist the best they may from kitchen and other refuse. The result is exactly what might be expected, a large-bellied, long-nosed, long-haired, loose-jointed beast, compared to which the aboriginal "razor-back" of the Ozark Mountains is a well bred animal. Yet, as shown by the above table, the province produces annually 1,925,000 head of these animals.

Scarcely any greater attention is bestowed upon the breeding of cattle or horses. Indeed, a vast majority of the horses and cattle of the province are brought down year by year from the plains of Mongolia where the only occupation of the people is stock raising, and while the Mongolian pony is an excellent work animal, he is small and poorly bred.

In animal breeding, as in general farming, a little intelligent selection and care would greatly increase the farmer's net profits.

Farm Labor.—According to information supplied by the Bureau of Statistics above referred to the average wage paid to farm hands ranges from 12½ to 17 cents per day, or from $3.75 to $5.00 per month. Wages vary, however, as between different parts of the province, and also, with the different seasons. For instance during the harvest season transient labor from Shantung is paid as much as 28 cents (silver 70 cents) per day, while at other seasons, labor may be had for 8 to 10 cents per day. Most of the farm labor of Manchuria comes each year from Shantung, Chihli, and Honan, and wiht the approach of winter returns to its native provinces.

The Manchurian Government has recently offered to grant free transportation to all the people of Shantung, Honan and other provinces who were willing to emigrate to the Three Eastern Provinces and cultivate the untilled lands of Manchuria.

Transportation of Agricultural Products.—The cost of transporting agricultural products is the chief item of expense in the growing and marketing of a Manchurian farmer's crops, and were it not for the fact that he exchanges only a small part of his products for cash, that which is not required for home consumption, he could scarcely make a living on the average Manchurian farm, solely on account of the miserable condition of the country roads. The only means of transportation between interior trade marts for farm products and merchandise as well is the two-wheeled Manchurian cart. This vehicle, capable of carrying a maximum load of about 1,600 pounds, is drawn by four to eight ponies or mules. This method of transport costs the farmer on the average approximately 20 cents per ton per mile, not because of the kind of vehicle used, but because of the almost impassable condition of the roads. The Manchurian cart is, indeed, the only kind of vehicle that could navigate the deep-rutted, quagmire-like roads which everywhere prevail throughout almost the entire year. The only season of passable roads is during the winter when the mud is frozen to a depth of several feet. It is then that the crops are moved and most of the year's teaming is done.

It is obvious, therefore, that until Manchuria has better roads for the transport of its products, it can not hope to become any considerable factor in commercial agriculture. The best that it may logically hope to do under present conditions is to produce a little more than enough to supply the demand of its own people. With good roads, and better transport facilities, however, new markets would be reached, the cost of production and marketing would be reduced by more than one-half, production would be stimulated and the land of the Manchu would enter upon an era of prosperity and progress scarcely second to that enjoyed by the inhabitants of the trans-Mississippi plains during the past thirty years. The making of good roads must constitute one of the first steps to be taken, if Manchuria is to have either prosperity or progress. The Manchurian farmer has undoubtedly been greatly benefited by the opening of the South Manchuria and the Chinese Imperial railways, but while railway communication is indispensable, good country roads are also a vitally essential adjunct to the economic welfare of an agricultural community.

Land Values and Taxation.—The average value of agricultural lands, according to the statistics above referred to, ranges from $8.40 to $12.30 per acre for first-class land, and for second-class, from $5.00 to $7.50 per acre. The general average value per acre, therefore, would be $8.30. This appears to be an exceedingly low average, but it must be remembered that the values quoted are in U. S. currency, one dollar of which is equal at the present rate of exchange to $2.50 of Manchurian currency and that the cost of living as between the inhabitants of Manchuria and Americans is roughly in the ratio of 10 to 1, *i. e.*, where it costs the American the equivalent of ten silver (Mexican) dollars to live, the Manchurian will get along, in his way, on one silver dollar.

In the matter of taxation it is impossible, from the meager information obtainable, to make a statement which would even approximate the facts. There are land taxes, grain taxes, a salt tax, an opium tax, a tax per head on beef cattle, and sheep, a butcher's tax, an export tax, police tax, a school tax, etc., etc. Certain of these taxes are fairly uniform throughout the province, *e. g.*, the salt tax, but in the main, they vary with each magistracy, according to the needs of a particular district, or the caprice of the tax collector. The authorities never make known to the public the state of the provincial or district revenues, either the amount required per annum or for what purposes the money is spent. Systematic and uniform taxation, coupled with the compilation and publication each year of financial budgets, would do much to correct many of the administrative evils which encourage deception and fraud in the payment of Government revenues and retard progress.

Agricultural Development in Manchuria.—Professor Edward C. Parker of the University of Minnesota, who was recently employed by the Fengtien Government to establish at Mukden an Agricultural College and Experiment Station,

writing on the subject of agricultural development in Manchuria, says:

"It is the opinion of the writer that the chief problems of agricultural development in Manchuria at the present time are economic, social and political problems, rather than scientific problems relative to the stimulation of greater productiveness in the soil. The vast acres of uncultivated land in the North are capable of producing a surplus crop for export even with crude methods of soil tillage, if transportation facilities could be developed to bring the farmer in touch with world markets. The agricultural problem of Manchuria is not so much the problem of making two blades of grass grow where one grew before as to change the existing economic and social conditions of farm life into an advanced condition of commercial agriculture in which the farmer can produce a surplus of food above local demands and find a ready cash market for that surplus. While improved methods of agriculture are undoubtedly necessary if the Manchurian farmer is to produce a large surplus for export, it is still more necessary that there be a market and a means for reaching that market with the surplus crop. If good roads could connect with railways and waterways in Manchuria, and if capital could organize the facilities for storing and shipping staple agricultural products, thus bringing relatively high cash prices for agricultural products into every community, there is little doubt but that Manchuria would produce a large surplus of crop for export, and in striving to produce a surplus the farmer would be quickened and fully awake to the advantages of improved methods of agriculture. The Manchurian farmer is not so much in need of the agricultural teachings of European and American applied science as he is in need of the far sighted genius of such men as James J. Hill in the United States, and Shaughnessy in Canada, who built the steel paths of commerce into the fertile fields of North America and were content to wait for dividends until the settlers came in and opened the soil. To-day every farming community in America is in touch with the world markets, and being in possession of the markets the agricultural problem of America is to increase production by the application of science to the art of agriculture. One hundred years ago the American farmer produced his food, fuel and clothing on the land and exchanged very little of his crop for cash. Then as transportation facilities developed, and the inventive genius of the American applied mechanical principles to agriculture, the old system of 'produce-and-consume-what-you-produce' farming passed away and crop products are now exchanged for cash, and the farmer buys coal for fuel and factory goods for his clothes. The Manchurian farmer of to-day is in a stage of civilization more remote from the highest modern civilization than the American farmer of 100 years ago and this fact must be realized in considering any Government policy for the improvement of agriculture.

"The Chinese character seems to lend itself to the adoption of new methods from demonstration rather than from reading or oral teaching, and thus in formulating plans for improving conditions in Manchuria the work of demonstration should have an important place. Government demonstration and experiment farms should be established in all the important regions of Manchuria and efforts be made to interest the farmers in simple machines such as plows and seed drills and in better methods of cultivation in anticipation of the time when better markets for the surplus crops of Manchuria may develop. Such machines as the two-horse American plow are within the reach of the common people and I am convinced that the people would be interested in such machines if they had the opportunity of witnessing their work.

"The potential wealth of Manchuria lies a far greater extent in the soil than in either timber or minerals, and should Manchuria ever be developed to its full possibilities its products both in quantity and quality would be as famous in the world's markets as the wheat of Canada and the cotton, corn and beef of the United States. Manchuria is a country of tremendous agricultural possibilities."

THE PORT OF ANTUNG*

Location and General Description.—Antung, known to the Chinese as Shahochen, is situated on the north bank of the Yalu River between 15 and 20 miles from its mouth. Commercially it is in closest touch with Chefoo, from and to which small steamers of 300 to 500 tons make the run of 230 odd miles, including the passage of the river, in from 22 to 28 hours. During the busier spring and autumn seasons an almost daily service is maintained; while during the summer the boards record, approximately, 20 entries per month. Dairen stands next in relationship with, at least, the regular weekly sailing over the run of some 135 miles. Then one degree removed in commercial convenience come the Korean ports, with which there is no great volume of direct business. But with Japan a brisk trade is plied by these steamers that touch at the Korean ports *en route* to the anchorages of Bumbegi and Tasarugi, 6 and 9 miles respectively down the Korean coast from the promontory that marks the line over which the Yalu debouches into the sea. During the season about 15 steamers a month, averaging slightly less than 1,000 tons each, have discharged and loaded at these island anchorages. The remaining 25 miles to Antung is covered by cargo-boats in tow or under their own sail. To these anchorages steamers of from 15 to 20 feet draught can come without difficulty at all seasons, while to that off Tatungkow, on the other side of the river's mouth, those of 15 feet can readily make their way.

In the river itself there has throughout the season been water enough to allow steamers drawing 8 and 9 feet to come up on the high tide and anchor off Antung. Although previous reports about Antung have stated that the river will only sporadically permit of 6 and 7 foot draught steamers making the passage, it is safe to say that the average for the season lies between 9 and 10 feet, with one record trip of 12½ feet. With the ordinary neap rise of 6 feet, a spring rise of 9 feet, and a maximum for the season of 15 feet 5 inches at Antung itself, it will be seen at once that, in spite of the constant shoaling and changing of the river bottom below this point, steamers can, by taking advantage of the high tides about the 3rd and 18th of the Chinese moons, count on finding for special trips from 12 to 15 feet in the channel.

This, however, by no means minimises the desirability of the movement for river conservancy and improvement. A study of the accompanying map of Antung will show how the main channel of the stream impinges at the upper harbor limit against the foreshore of the Chinese city and flows in an eroding curve along the whole river front to below the lower harbor limit, depositing at the same time its ill-gotten gains with the opposite bank, where certain interest will accrue. In November an especially rapid current tore away a liberal piece of the shore off the Japanese Settlement, thus demonstrating clearly the need of bunding. Consequently, it is hoped that the instinct of self-preservation will soon afford the necessary motive power to the movement for dredging the short stretch of river within the harbor and for bunding the entire front.

Yalu Bridge Project.—It is proposed to aggravate permanently this handicap and to make wharves or hulks of no avail by building a fixed railway bridge at what is marked as the present lower harbor limit. This bridge is intended to form the connecting link between the Japanese Government-owned lines on the peninsula and the Antung-Mukden arm of the South Manchuria Railway system, when the conversion of this latter road to standard gauge be carried through. A new survey for the bridge has been completed, and recent information has it that the time of building depends entirely upon the action of the Diet with reference to the budget item proposed for the work. Technically—according to the present plan—the bridge will have a total length of 3,182 feet divided into 200 and 300 foot truss spans, will be 30 feet wide, 26 feet above high water, and is estimated to cost *Yen* 2,500,000. The Chinese authorities have asked that the plans be so drawn as to provide for some form of draw or swing over the channel, so that the Chinese town may not be subjected to the inconvenience and expense of having all its deep-sea shipping prevented from coming on up to or nearer the Bund. If, on the one hand, the major premise that dredging and bunding are feasible and desirable for both the Chinese and Japanese quarters be correct, then it would be wrong to prejudice the development of the Chinese town—and as surely that of the Japanese portion, which must be directly influenced by the volume of business done by the Chinese—by making the more ideal steamer facilities permanently unattainable; but, on the other hand, there can be no doubt that to force across a navigable boundary-line river, in the face of protests from one of the riparian states, a closed bridge of such a height as to hamper that state's sea-going traffic is not such an act as may be admitted to come within the previously established standards of international comity. And that it would so hamper it also admits of no doubt, since the ordinary cargo-boats within the harbor carry masts of from 30 to 40 feet, and the sea-going junks, which ply regularly between here and Chefoo, staffs averaging over 50 feet.

But that such a bridge with the suggested draw or swing would be advantageous for the place is also quite patent. It would link the two chief land routes of trade and travel which converge at this point. As it is, the Seoul-Wiju line, though in itself not yet a paying venture, has proved to be a good asset of the port in making possible the winter movement of silk and imports in considerable quantities. The time of the express trains will be but 15 hours over the 311 miles to Seoul and 24 hours for the 583-mile run through to Fusan. From there another 12 hours will land the traveller at Shimonoseki, and 34 hours more, or a total of 70 hours from Hsin Wiju, will bring him to Tokio. Given the bridge over the Yalu and the alteration of the Antung-Mukden line, and steam will have compressed the time from Tokio to Mukden to less than 80 hours.

Antung-Mukden Railway.—Of the heralded improvements on this line, it may be said that a resurvey of the route has been made to check up the estimates based on the measurements of 1905, and simultaneous announcement comes that the tracing of alternate lines remains for a later day. As it stands, the line is still that wonderful little 29-inch track which overcame the Russian forces in front of it by the weight of lead and stores which it belched forth at them from the railhead. It remains as a splendid sample of military engineering; but it is far too light to have any serious commercial importance. Even if it be remodelled the improbability of its commercial success is clearly indicated by the Tokio uncertainty as to whether strategic or commercial considerations should be given first place in the discussion of the plans for its reconstruction. Under the present schedule two long days of weary discomfort through beautiful scenery are necessary to make the 189 miles. Yet, if both the bridge and the new rails materialize, this route from Japan to Siberia, now one of the most diversely interesting in the East, should become one of the most frequently travelled.

City Improvements.—Inside the dike both the military administration, before handing over charge to the civil authorities on the 1st October, 1906, and the civil authorities subsequently have spent liberal amounts in providing well-laid-out streets, and excellently appointed hospital, a commodious school, and a substantial post and telegraph office. An extensive telephone system has also been installed. Following this comes the recently signed agreement for the formation of a joint Japanese-Chinese company to furnish electric lights to the two sections. The municipal authorities have metalled and improved some of the principal streets at a cost of *Yen* 46,500. These official measures have been well supplemented by individual

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*Excerpts from *Trade Report* of Lewis S. Palen, Acting Commissioner Customs.

enterprise in the erection of substantial office and residence buildings.

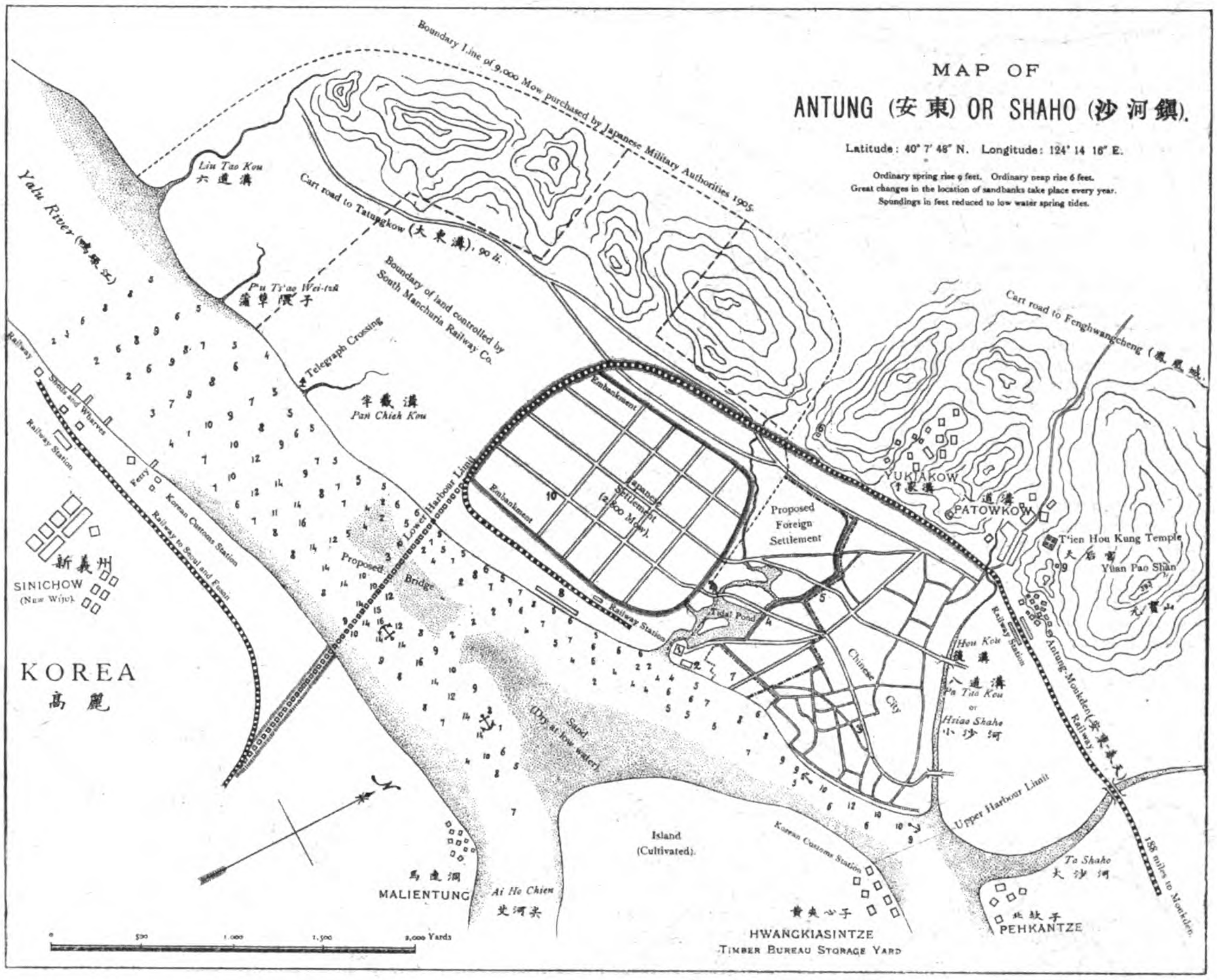
Land.—In the matter of land tenure, however, the Settlement must be considered less fortunate. As the Japanese Government, through its local representatives in the person of the Consul or of the Railway Company, retains claim to the ultimate fee-simple title, those wishing to occupy the land can only secure a lease right for a term of years—usually 10—by bidding for the same at public auction. As these leaseholds, obtained at the first auctions in 1905 for from 50 to 80 sen per *tsubo* (1 *tsubo* contains 36 square feet, that is, 200 *tsubo* to a *mou*), now command for the remaining seven or eight years

was made in 1905 by a group of seven Japanese merchants, under the ægis of the military, of between 4 and 5 miles of river-front land, embracing in all 19,639.5 *mou*, that stretched to beyond Santaolangtow and thus gave an unbroken control of the shore for over 6 miles. But this tract was bought back by the Taotai in the autumn of 1907.

On the other side, above the Settlement, comes the Chinese town. Here, besides the native hongs, are the yamen, the Custom House, the offices of the foreign firms represented, and the site of the proposed Foreign Settlement. Aside from the good river frontage, this site, as it stands to-day, has little to commend it to

was established on the 14th March 1907. Although this helped to put the Chinese merchant on a more equitable footing *vis-à-vis* his Japanese competitor, who had been enjoying immunity from duties during the previous season, the year's trade first showed for him an uphill fight against early drought, low water, disturbance in the timber industry, and their attendant ills; but, later, saving rains brought those full granaries which, combined with a bumper crop of cocoons, meant snug profits for the counting-room.

During four months of the year the river is tightly sealed. The busiest weeks follow the river's opening—usually between the 20th and



they have to run an average, for good sites, of from 7 to 8 yen per *tsubo*; and as the municipal tax on the ground amounts to 6 sen a month per *tsubo*, it works out that the use of a *mou* of land in a fair location for the coming seven or eight years will require an initial outlay of, say, *Yen* 1,500 and an annual tax of *Yen* 144. Under these conditions the Japanese merchants are already giving indications of dissatisfaction with their land tenure by claiming that the purchase of the leaseholds should entitle them to continuous possession without any further payment other than the monthly tax.

Immediately outside the Settlement a large block of the abutting land has been transferred to the control of the South Manchuria Railway Company, and is being rented by them or reserved for their own uses. Bordering this, the remaining sections of the 9,000-*mou* tract are now administered by the Japanese Consulate as the successor of the military power. Most of it, so far as the available information shows, has been turned over to certain Japanese to sub-lease to the Chinese farmers, among whom are the previous owners of the fields. Below this outer boundary line on the map a purchase

prospective dwellers in Antung; but if it were raised to 6 feet above the level of the present bund—a stupendous task, but the only ultimately satisfactory solution,—it would command most certain approval. At present the members of the foreign colony have their residences on the hills behind the Chinese town.

In the town there have been marked improvements during 1907 in the form of macadamized roads and many new buildings. Land is increasing in value and rents stand unusually high. Yet, until some relief be found, the skeleton is always present in the form of those threatening summer floods which exact such heavy toll. With the forests on the head waters of the Yalu and the Hun Rivers being rapidly cut away, the merchants may count on being compelled to resort with increasing frequency to their summer storage-rooms on the neighboring hills, and the dwellers in the more exposed quarters to replace the mud and reed built walls which the waters tear from their houses.

Trade.—Antung was opened to trade by Article XII of the Commercial Treaty between the United States and China signed at Shanghai on the 8th October, 1903. The Custom House

30th of March,—when new stocks of imports arrive and the accumulated beans and beancake, together with the belated autumn wild silk cocoons, hurry out. Again, in the autumn, before the ice sets—late in November,—the anchorage has often held six, and sometimes seven or eight, small steamers, attracted by the excellent freights to be secured from the cocoon crop. During the high water of July and August little but timber moves.

With imports Antung serves the one independent sub-prefecture and six magistracies which roughly cover the western slope of the Yalu valley, as well as supplying part of the demands of the northern districts of Korea. Here the former territory is being somewhat trenched upon by New Wiju, although it must be many years before the well-beaten path from Old Wiju to Antung can be completely deflected down the Korean shore. In the other direction, Takushan may be expected to absorb some of the business of the western boundary.

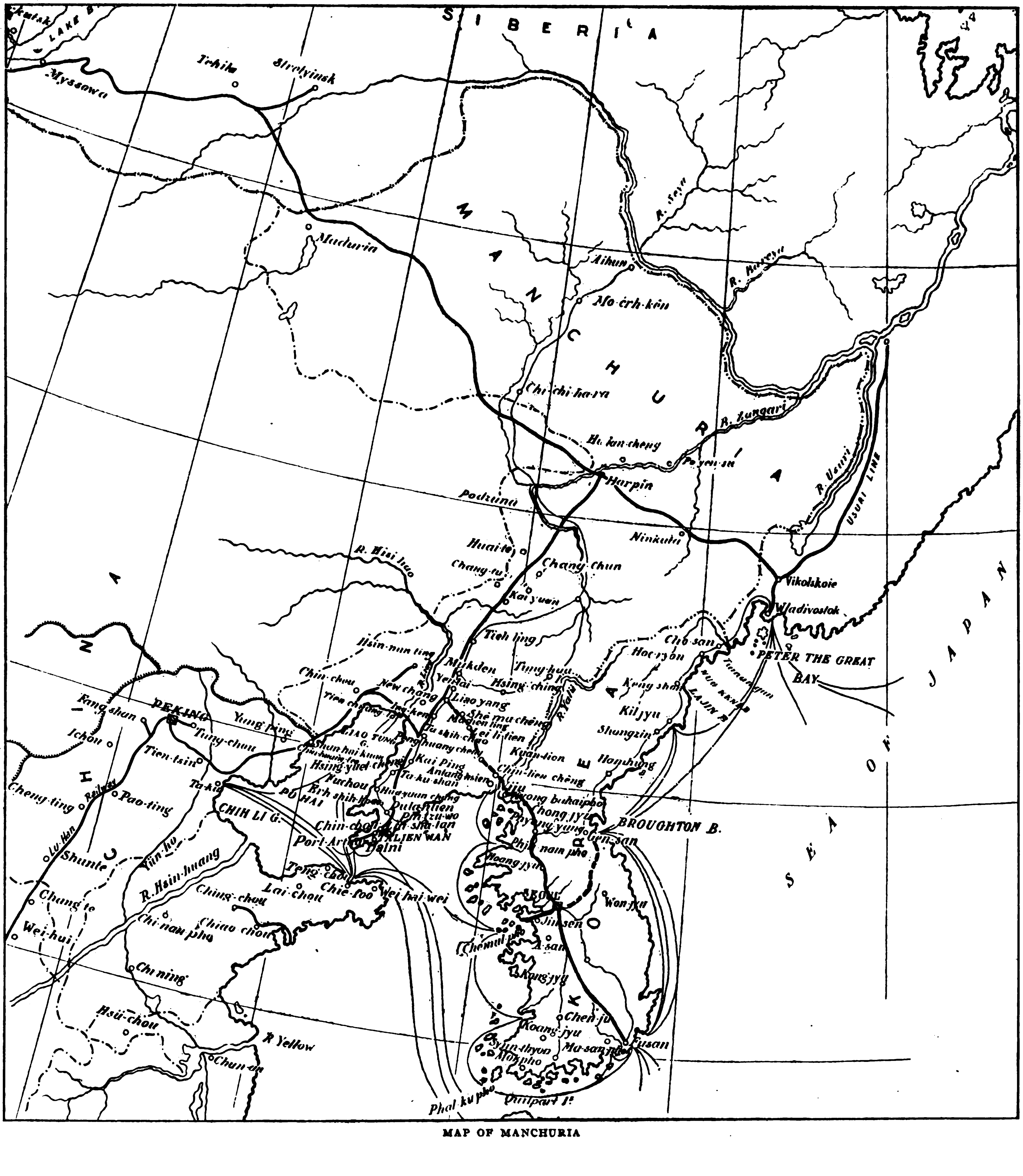
In exports Antung may have a much more varied future, since to her present staples of beans, silk, and timber may be added a considerable quantity of mineral products, if the moun-

tains give forth the gold, silver, iron, copper, and coal which prospectors have asserted to be stored therein; and since her sphere of influence may be greatly widened by the installation of such additional railway lines as are mooted to Kirin and the Sungari, or to Liaoyang or some point to the south of it on the Dairen-Moukden line.

Of the staples mentioned, the steamer-borne beans and beancake go almost entirely to Japan, while the 125,733 piculs of beans and 59,-000 odd piculs of beancake, reported by the Native Customs for 1907, may be considered as having found their way to the Shantung coast for consumption there or shipment south. In producing the residue of cakes for export the nine bean oil factories in the port annually express about 18,000 piculs of oil and a total of, approximately, 175,000 piculs of cakes. Besides bean products exported, the Native Customs return 123,750 piculs of various grains, the bulk of which is indian corn.

But first among agricultural products now stand wild raw silk and cocoons; in fact, these silk products seem to bid fair in the long run to distance even the timber, which has given to the port its name abroad and its greatest activity at home. For the year the total value of the exports by steamer has run to *Hk. Tls.* 1,649,150, which is slightly more than the conservatively estimated output of timber.

When distribution begins, the raw silk finds its way largely to Japan and Shanghai, while the cocoons gravitate almost *en bloc* to Chefoo, where they go on the market to feed the local Chinese filatures and the German one at Tsing-



MAP OF MANCHURIA

tau. From Antung 1,302 of the 3,550 piculs of silk went to Japan, but only 1,237 out of 82,953 piculs of cocoons. That, however, a larger gross amount of the crop will annually be shipped to Japan is assured by the recent establishment of a small experimental Japanese filature, which by spring will be turning from its 200 machines at least a picul per day for the Osaka looms. Already the first filature under Chinese management has been operating for several months, producing daily, through 150 hands, about three-quarters of a picul of superior thread, whose smoothness, fineness, and freedom from knots bring 50 per cent. more in the market than the ordinary "village" spin. These, of course, are small beginnings; but that they are promising is shown by the inability of the Chinese filature to keep abreast of the demand for its higher-priced product.

With the advent of the filatures we find their superior thread commanding *Hk. Tls.* 315 per picul, as against *Hk. Tls.* 206, the best known return from a picul of the "village" spin; and synchronously comes the announcement from Tokio of two inventions which should bring tussore upon the market as a competitor with the domestic silks of China and Japan. The first of these is a new process for bleaching the silk, which will render it amenable to dyes of the lighter shades; while the second is a spinning machine, which makes a smoother and more uniform thread than is now producible. With an ever-increasing Western demand for pongees, and with these other favorable portents in the commercial heavens, the horoscope of tussore in this region cannot be read to mean anything but added wealth to the producers.

The Yalu Timber Industry.—Turning to the premier product, timber, we find an amount of interest and story interwoven with the history of its development which justifies a moment's lingering over the record of the early years. The local patriarchs assert that so far back as 1823 the Emperor Tao Kuang despatched axemen to fell the Yalu timbers for his palace. Next, in 1845, came two Shantung men, Chao Wen-Fu and Ma Yu-t'ien, who set up at Mashihtai as collectors of the tribute of two logs out of every 10 which they required from their 500 followers, and, later, from all others who were attracted to the lumber business by tales of wealth to be gained. In fact, no one was allowed by them to fell the trees unless provided with one of their enabling certificates. These first rafts made their way to Changtao off the mouth of the river, and even put farther to sea for Lutao some miles to the west and nearer Takushan, where the wood merchants from Shantung and Chihli congregated. Thus, all supreme, these two respectable highwaymen battened on their profits undisturbed until other and more valiant lances opened operations in 1854 at Santaolangtow by simply seizing through brute strength the down-coming rafts and appointing themselves pilots for the remainder of the journey to the market. But the wheel must turn. Two years later it brought round one Ch'u Wen-ch'ing woodsman, naval designer, and admiral combined, who, having "developed steam" over this uncharitable levy that kept his rafts on the head waters of the river throughout the summers of 1854 and 1855, employed the winter of his discontent in fitting out a flotilla to clear the stream of this robber gang. With the help of his 60 or 70 co-workers he hollowed out and bound with iron bands a battery of red elm logs, and then mounted them blind in the dugouts which the rafts carry as life-boats. The ruse and bravery won the day; one of the decisive battles of the valley had been fought; the timber trade turned into new channels. Weakened in the joints by the recoil of the big guns they mounted, the rafts could not put to sea for their island markets, and had to seek refuge in the creek at Tatungkow, to establish, unwittingly, the new and greatest market of the three. Only a short triennial cycle of quiet followed this clever victory before another clique of gentlemen robbers developed—at Tatungkow, in 1859. One set up a stake with a flag at the entrance of the creek, and there browbeat those who would pass into paying toll; two others collected unwilling subscriptions for a big temple that never rose; a third levied "well water fees" on the rafts. Hunghutzes maintained traditions in 1871, until the Siuyen officials sent Sung Kuo-ch'ang to scatter them and to institute the first regular wood tax office, with authority to collect such fees as would provide a guard of 200 soldiers. But peace was not yet. Allured by the ever-increasing returns, one Sung San-hao, a hardy son of Shantung, assisted by his Tientsin lieutenant Ni Chung-k'uei, calmly marshalled 1,000 braves and usurped the official functions of the lesser Sung in 1871-72. His magnetic powers in attracting revenue from the raftsmen and his success in playing the part of the "local king" both harassed the lumbermen and called forth co-operating approval from the mandarin at Siuyen, in that this worthy secretly despatched envoys to league with Sung in maintaining one of those brigandage insurance companies which thrive so well on the rich Manchurian soil. Then, after a reign of only two or three years, this model highwayman attracted more disastrous official attention when he came under the notice of the Moukden Tartar General, who asked the help of sea-borne troops from Tientsin to establish regular authority and habits in the valley. This the persistent general in command succeeded in doing only after a siege of several months. With official supremacy established and a civil administrator appointed, reviving calm soon brought forth another authorized tax office—but! The record runs that the new official, being unfamiliar with these timbermen's affairs, dug up the original prototypes of all these years, Chao Wen-fu and Ma Yu-t'ien, and asked them to compile regulations for the new office and to assume charge of it. Thorough their administration must have been; yet it had the undesirable feature of leaving such of the raftsmen as chose to pay the full duty in debt when their rafts were sold. This could not in honor continue after the official had been raised to a Magistrate, so in 1876 Chao and Ma had to go—and with them went the earlier struggle for existence among the lumbermen.

After this official ordering of the affairs of the valley the annual output developed steadily, until it reached the proportions shown in the following table for the past 13 years:—

Year	Number of Rafts Floated	Average Price per Fu.*	Year	Number of Rafts Floated	Average Price per Fu.*
		Antung Tls.			*Antung Tls.*
1895..	1,240 to 1,250	8 to 9	1902..	(Very few)	..
1896..	2,800	27	1903..	3,200	80
1897..	4,750	42 to 43	1901..	2,700	40
1898 .	5,000	20	1905..	450	43
1899..	8,100	29 to 31	1906..	2,650	35 to 36
1900..	6,650	4 to 6	1907..	4,060	18
1901..	2,600	20			

* 11 pieces, 8 Chinese feet long, of varying sizes.

In general, the reasons for the fluctuations lay hidden by the inexorable law of supply and demand, or were due to some such apparent cause as the Boxer trouble in 1900, when the price was so low that the raftsmen found it cheaper to slip away, leaving their rafts on the bank, than to repay the advances for food and clothes to the hong managers who had staked them. In 1902 the Lin Ch'i-luan escapade crippled all business. What the course of events during the past four years has been will be reverted to after an outline of the system of cutting and marketing is sketched.

Under the system which has locally grown up, lumbermen use either their own capital or that of the manager of one of the wood hongs by which the rafts are subsequently to be sold. In the latter case the interest for the period—be it one or more seasons—during which the capital is tied up in the particular job under agreement usually runs as high as 40 per cent., owing largely, it is said, to the fact that the manager must assume the risk for all losses by storm or flood. For the job a head boss is first found at a fee of from 70 to 80 taels, besides his share in the profits. He, in turn, employs a "properties boss" at from 50 to 70 taels, charged with all matters of provisions, implements, pay, and accounts; a "hill boss" at from 40 to 50 taels, who superintends the actual cutting; and 10 choppers, who are "staked" with clothes and food by the hong manager until they can make repayment out of their share of the profits. Once in the timber region the hill boss marks out the claim by tying wooden signs on trees at the angles, and, strangely enough, rests assured that these marks—protected by the strong hand of custom—will remain untouched for several years. Next he must settle upon the Chinese character, and more particularly the exact width of its excavated strokes, to be cut as a designating sign into the end of his logs before the serious work of felling can begin.

Well accoutred, the party usually starts on its up-river tramp of some 200 odd miles during the summer months, in order to have the timber down in time to take full advantage of the winter snows. One such group is counted on to fell and rough finish 80 *fu*, that is, 880 pieces of 8 feet in length or 440 pieces of 16 feet, or an equivalent admixture of these and longer lengths. The rule is that, to finish the job properly, one-half of this number must be on the river bank by the beginning of spring—this year, 5th February,—so that the rafts may be formed in the third moon. It is also an interesting detail to note that each of the skidders, whether he employ ox, horse, or man for hauling, cuts an individual mark into the end of the logs he skids to enable him later to cast his accounts. Once on the bank, the season's cut will be formed into two or three rafts of from 25 to 30 *fu* each—usually made in four or five sections of the 16-foot logs, which form the bulk of the output. The shorter lengths are then sandwiched in between the longer pieces or laid on top of the raft. In binding the side and interspersed middle pieces together, a heavy withe or tree branch is run through holes cut in the projecting ends, and these sections are then firmly lashed together fore and aft. In the centre of the raft a bark or thin board hut is built, while at the ends are mounted long sweeps—four on the smaller and six on the larger craft. To man all these the boss must hire another three or four raftsmen, who have trudged up in the spring, and, in addition, a captain to pilot the fleet down stream. These sailors receive, say, 20 taels and the captain 30 taels to see the rafts safely landed at Antung or Tatungkow, no matter whether floods or drought hurry or stay the journey.

Arrived here, the bosses and cutters are again staked at the hong until the wood can be sold. From the proceeds must first be taken out the advances for utensils, clothes, and food, the manager's capital and interest, and the bosses, raftsmen's, and pilot's wages before the divisible residue appears. Of this, the head boss usually receives 1.6 shares; the sub-bosses, 1.5; and the cutters, 1 share each; making, in all, 14.6 shares. Should the proceeds fail to cover the deductible expenses, the manager's interest is held over to the succeeding year and the cutters get only their expenses.

From the artisan's standpoint the methods of cutting and rafting are criminally wasteful, involving an estimated unnecessary loss of 35 per cent. in the squaring of the logs, in the method of binding them together, and in the neglect of good top ends. Then all of the bark, slabs, riflings, and dust—those items which now make the profits in other lands—are left to rot. Moreover, the system of cutting the logs and of selling only whole rafts renders it most difficult for foreigners to make a beginning in the local lumber business, although many inquiries have already been received. Also, when it is considered that one river in Sweden may float down 5,000,000 logs a year while the Yalu brings down roughly 1,500,000 8-foot sticks, it will be seen that the importance of the Yalu forests may, perhaps, have been overestimated by an interested public, and that the threatened competition of this region is not to be feared. This is emphasized by the fact that Japanese thin boards find a market here and that the importation of Oregon pine is mooted. If, however, the proposed Japanese-Chinese joint company is formed and the projected sawmills are erected, these conditions may be changed.

KIRIN PROVINCE

Kirin province is mountainous and thinly peopled by Manchus, whose principal occupation is fishing or hunting. Some Chinese cultivate the soil. Since the reorganization of the Administration of the Three Eastern Provinces, the Chinese Government has erected many buildings, such as the mint, the arsenal, the provincial bank, dockyards, etc., and opened main thoroughfares. Foreign merchants and many from other provinces have recently located here. In 20 years the physical aspect of Kirin has been changed from a wild and desolate region to one giving evidence of progress with houses of all descriptions everywhere and modern ideas prevailing. The head of the Province is H. E. Chen Chao Chang, the Acting Governor, who, being a member of the Hanlin College, has a fair knowledge of English and is widely known for his ability and enlightenment. The administration is practically on a military basis. Next in rank, are six military lieutenant generals who have command of the banner force as well as the foreign-drilled force. They are stationed at Kirin, Ninguta, Sansheng, Patuna, Ashiho (Allchukha) and Hunchun. There is a Taotai at Kirin and Prefects are stationed at Kirin and Chang Chun Fu or Kwan-cheng-tzu. There are sub-prefects at Patuna, Shuang Cheng, Pinchou and Wu-chang, a Department Magistrate at Yi-tung, and District Magistrate at Nungan, Lung-wan and Tunghua. The most important military post next to the capital is Hunchun, situated about 30 li from the Russian border and 180 li from Vladivostok. Other important military posts are San-shung and Ninguta. Kwangcheng-tze, an important city, the centre of the agricultural area in the southwest part of the province, has a population of over 100,000.

In winter, a large quantity of beans and other products are daily transported either to Kirin, Hei-lung-chang or Mukden.

HEI-LUNG-CHIANG

Hei-lung-chiang is bounded on the north and north-east by Siberia, on the east by Kirin, on the south by Mongolia and Kirin, and on the west by Mongolia and Siberia. The capital is Tsitsihar or Pukuei which is the centre of the trade. Another important port is Hei-lung-chiang, Aigun, or Saghalien, and Hu-lun-peierh is the most important military post in the north-west part of the province.

His Excellency Chow Shu Mu, being the Acting Governor who was formerly the Commissioner of Education at Kang-su and afterwards senior secretary to the Mukden Government, is known for his ability and literature. Next in rank are six military lieutenant generals stationed at Aigun, Mergun, Tsitsihar, Hulun, Hu-lun-peierh (Khailer) commanding, in addition to the Banner Force, a foreign-drilled force of about 14,000 Chinese. Besides their ordinary military duties they are engaged either in cultivating the land or suppression of the Hung-hu-tze (robbers) which is rampant in the south of the Province and in the protection of the gold mines on the right of the Amur. There is a fort at Aigun on the Amur for the protection of the frontier. This province abounds in gold, iron and coal mines. There is at present a gold mine at Mo-ho worked by foreign methods, which seems to be very flourishing.

The administration is nearly the same as that of the Mukden Government. A full account of the names of the provincial officials will be given later on.

AGRICULTURAL, INDUSTRIAL AND COMMERCIAL INSTITUTIONS

The following is a partial list of the government establishments under the Bureau of Agriculture, Industry and Commerce of the Feng-tien Province:

Agricultural.—Agricultural Experiment Station at Mukden, manned by university and college graduates from America and Japan, and equipped with American machinery. The station has about 300 acres of land, and is actively engaged in making various experiments to determine the best practices of agriculture for Manchuria. The station has connected to itself an agricultural school with 150 students receiving instructions in the Science of Agriculture.

Forestry Station at Mukden, where forest and shade trees are raised for distribution in different parts of the province.

Stock breeding ranch near Sin-min-tun, with about 10,000 acres of land and 500 heads of cattle, and some horses.

Industrial.—Industrial School and Model Factory at Mukden, where the arts of rug making, embroidery, carving, furniture making, etc., are taught. Considerable furniture and rugs of fine quality are being made there. Glass-wares are also made there out of imported glass.

Tanning Factory at Mukden.

Government Printing Office at Mukden.

Government brick kiln at Mukden.

Commercial.—Chinese Merchandise Exhibition House at Mukden, where commercial products of this country both as raw materials and finished articles are exhibited to the general public with the object of commercial extension and improvement.

Merchants' Associations.—At Mukden, Yinkow, and An-tung respectively.

AGRICULTURAL MACHINERY

The Board of Agriculture established by the Viceroy has purchased a number of American harvesters, plows, reapers, harrows, hullers and other farm machinery, for use at its Agricultural Experiment Station in Mukden. Labor saving devices would be welcomed in Manchuria as no where else in China, for the population is scant as compared with other portions of the Empire.

Several of the highest provincial authorities have suggested that it would be mutually beneficial if manufacturers of agricultural machinery should send their representatives with a number of implements to tour the country, demonstrating their use at frequent exhibitions. Such an enterprise would meet with the approval of the Viceroy and could doubtless be undertaken under the auspices of the provincial administration. The Chinaman is a ready purchaser when once he is convinced of the utility of an article. A British firm has sold four large Howard steam plow, shipping them north from Newchwang. Tracts of Government land are now being opened for cultivation. The large grain firms would doubtless be ready to invest in hullers for cereals, and a machine which would remove the beans from the pod would meet an already existing demand. The officials and merchants interested in such projects who have already requested catalogues would be more inclined to buy, if they were to be given a practical lesson in the operation of such machinery.

Some American steam plows were also sold in Hei-lung-kiang province, but are rusting away out on the prairies, for lack of competent men to operate them. The International Harvester Co., through their agency at Vladivostok, have taken an interest in the development of this market, but are confining their efforts to building up a trade in the Trans Amur district of Siberia among the thrifty Russian settlers, rather than with the Chinese farmers in Manchuria.

The firm of Felge & Schroeter of Tientsin have also sold several American steam plowing outfits to the Government at Tsitsihar, which will be in operation next season.

THE BRITISH-AMERICAN TOBACCO CO.

A Successful Enterprise in Manchuria.—Before the outbreak of the Russo-Japanese war the British-American Tobacco Company had secured a profitable foothold in the Manchurian market, but during the progress of hostilities all business was necessarily suspended, and in entering the field again, although the Japanese Tobacco Monopoly was established and had been aided by the military authorities with transportation and warehouse facilities before Manchuria was opened to foreign enterprise, the more business-like methods of the former company were productive of immediate results, and the Monopoly's sales fell off to such an extent that it has practically withdrawn from the field.

By means of personal representation and by a readiness to avail themselves of all opportunities for extending their field of operations, the agents of the British-American Tobacco Company have steadily increased their sales until they have practical control of the trade amongst the Chinese.

In September, 1905, when the Company's manager for Manchuria assumed charge, trade conditions had been seriously disturbed by the war, and the Japanese Tobacco Monopoly was established throughout southern Manchuria. While the Japanese military were being gradually withdrawn, preparations were being made to undertake an active campaign as soon as the country was open to Europeans and Americans. Lists of the principal Chinese merchants in the interior were drawn up to facilitate the establishment of native connections, Chinese speaking assistants were selected, and when Mukden was finally opened in June, 1906, a sub-agent was dispatched there, with as little delay as possible, to occupy quarters prepared in the premises of the largest tobacco merchant of that town through whom the company's stock was distributed. Since then three other merchants, as well, have been made distributing agents.

The native dealers, handling these goods, rely for their profits upon the volume of their business rather than on the percentage realized in the sale of each case or package, and are anxious to deal with the British-American Tobacco Company, although the commissions offered by rival concerns are considerably larger.

As far as was possible those brands of cigarettes which had been formerly used in this region were again placed on the market. The old "chops," or trade marks, were used at first, for the Chinese are steady buyers of an article with which they have become familiar, and an attractive "chop" does a great deal towards enduring popularity, now, however, the old as well as the new brands which take the fancy of the public are extensively advertised, bill posters, calendars, scrolls for interior walls, different series of pictures with illustrated continued stories thereon, the old fashioned cigarette picture, theatre programmes with a border design including the names and "chops" of the different cigarettes, and cheap cigarette cases, all the reading matter being printed in both Chinese and English.

Competition was keen at first, but in time the Chinese found that the Japanese and Chinese brands made in Tientsin, Chefoo, and Shanghai were not as satisfactory as the pure American leaf used by the British-American Tobacco Company, and the demand fell off. Whenever a brand of a competing company was found to be gaining in the market, one somewhat similar in form was introduced, i. e., the best selling brand was equipped with a paper mouthpiece, or a single wooden one was packed in each box, and although no attempt is made to change the "chop," or to imitate, the whims of the Chinese are studied and catered to in every possible way.

The agent keeps in constant touch with the branches in his district, Tiehling, Hsinmintun, Liaoyang, Kwangchungtze, Harbin, Kirin, and the manager makes frequent trips over the whole territory under his control. Each city as it opens to trade is added to the list of agencies.

The success of the methods employed is a testimonial to the advantages of personal representation, and go far to prove that the Japanese competition does not offer an insurmountable obstacle to the increase of foreign trade.

THE PHILIPPINE RAILWAY COMPANY, MANILA, P. I.

We have situations open for the following men: Grading Camp Foremen; $125.00 gold per month; Grading sub-Foremen, $100.00 per month; Re-enforced Concrete Foremen, $100.00 per month; Track Foremen, $100.00 per month; Timekeepers, $80.00 to $90.00 per month; Civil Engineers—Rodmen with some experience, $80.00 per month; Instrumentmen, $115.00 per month; Resident Engineers, $175.00 per month. None but experienced men with good records need apply.—W. B. POLAND, *Vice-Pres. and Chief Engineer.*

FAR EASTERN COMPANY REPORTS

SINGKEP TIN MINING CO.—The net profit for the year was Florins 65,855 which was carried forward.

YOKOHAMA RICE EXCHANGE.—An interim dividend of 8% per annum was declared by this company at the general meeting held last month for the last half of 1908.

THE KAWASAKI DOCKYARD COMPANY.—At the 25th half-yearly meeting held December 26th, a dividend of 12% per annum was declared for the term.

THE YOKOHAMA DOCK CO.—The profit for the half-year amounted to yen 148,280 out of which a dividend at the rate of 12% per annum was declared for the term.

THE YOKOHAMA RAILWAY CO.—This company held a meeting December 25 covering the period of operation from September which showed a net profit of yen 17,413. A dividend of 5% per annum was declared.

YOKOHAMA WAREHOUSING CO.—The accounts showing a net profit of yen 8,808 were adopted and the amount carried forward for the second half of the year.

OJO COLLIERY CO.—At the semi-annual meeting held December 26 a dividend for the term at the rate of 20% per annum was declared.

TOKYO STOCK EXCHANGE.—The following account and distribution was approved at the regular meeting of the shareholders, December 23rd:

	Yen.
Profit during the term	490,555
Brought from last term	3,364
Total	493,919
To reserve	24,530
Construction and sinking fund	2,000
Dividend to shareholders (11.6% per annum)	464,000
Carried to next term	3,389

THE TOKYO TRUST COMPANY.—At the recent semi-annual meeting this company declared a dividend at the rate of 10% per annum for the term.

JAPAN MILL FLOUR COMPANY.—A dividend at the rate of 10% per annum for the half year term was declared by this company.

TOKYO PASTE BOARD COMPANY.—A dividend for the half year at the rate of 14% was declared.

THE TOKYO ELECTRIC LIGHT COMPANY.—The following are the accounts submitted and the distribution made by this company for the second half of the year 1908:

	Yen.
Brought from previous term	52,411
Profit for the term	940,759
Total	993,170
To reserve	50,000
Dividend (11 per cent. per annum)	879,776
Carried to next account	63,394

THE FUJI PAPER MILL CO.—The following accounts were approved and the accompanying distribution made at the regular half yearly meeting held last month:

	Yen.
Net profit	164,516
Brought from last term	12,366
Total	176,882
Legal reserve	8,226
Special reserve	16,452
Reserve for equalization of dividend	50,000
Dividend to shareholders (6 per cent. per annum)	190,500
Carried forward	11,704

THE TOKYO WIRE ROPE COMPANY.—This company's receipts for the term amounted to 106,663 yen and with yen 23,665 made yen 140,000 for distribution as follows:

Yen 20,000 for the reserve; yen 78,000 to be distributed in dividends at the rate of 18% per annum, and the balance forward.

THE OSAKA COTTON MILL, LTD.—At the regular half-yearly meeting a dividend of 12% for the term was declared.

THE AMAGASAKI COTTON MILL CO.—This company paid a dividend of 20% for the last half year.

THE HONGKONG AND SHANGHAI BANKING CORPORATION.—Subject to audit, the dividend for the half year ending 31st December, 1908, will probably be 40/-. Bonus to shareholders 5/- per share. Amount added to Silver Reserve fund $5 lacs, and amount carried forward to next half year $20 lacs.

THE DAI NIHON BEER COMPANY.—The accounts submitted and the distribution made follow:

	Yen.
Net profits	567,700
Brought over from last account	388,129
Total	955,829
To legal reserve	62,993
To rewards to officers	26,735
To dividend (15 per cent.)	52,602
Carried over	345,498

THE 100TH BANK.—The general meeting was held January 17th. The net income for the last half of 1908 was *yen* 400,942.76. Of this sum, *yen* 50,000 will be set off as reserve; *yen* 266,625 will be paid as dividend at the rate of 30 per cent. per annum; *yen* 35,000 as bonus to employees, and the remainder will be carried forward to next account.

THE LAOU KUNG MOW COTTON, SPINNING AND WEAVING CO., LTD.—The directors of this company have recommended the distribution of a dividend of Tls. 4 per share.

HONGKONG LAND AND INVESTMENT CO., LTD.—The net profit for the year ended December 31st, 1908, including balance forward amounted to $384,975.12. From this an interim dividend was paid of $3.50 a share and a final dividend of $3.50 a share was authorized and a balance of $26,475 carried forward.

THE WEST POINT BUILDING COMPANY, LIMITED.—The net income including the amount forward from last account showed $52,518.15 for distribution. Out of this amount an interim dividend of $2.00 a share had been paid and at the meeting of January 28th a final dividend of $2.00 a share was authorized making $4.00 a share for the year ended December 31st.

MITSUBISHI BANKING DEPARTMENT.—The net income for the second half of the year 1908 amounted to yen 364,884. The amount brought forward from previous term was yen 3,810,340 making the total available profits yen 4,175,245. Out of this amount yen 50,000 were distributed as partnership profit at the rate of 10% per annum and the balance carried forward.

THE HONGKONG AND WHAMPOA DOCK COMPANY, LTD.—The directors recommended that a dividend of 8% or $4.00 a share be paid; that $21,000 be placed in special account; that $28,000 be written off Cosmopolitan Docks and Floating Account and that a balance of $384,000 be carried forward.

SHANGHAI LAND INVESTMENT CO.—This company has declared a final dividend of Tls. 2 a share for the year ended December 31st, 1908. This is equal to 6%.

TOKYO RICE AND MERCHANDISE EXCHANGE.—The following accounts were adopted and the recommendations of the directors as submitted were approved as follows:

	Yen.
Profit for the term	124,468
Brought from previous account	844
Total	125,312
To reserve	6,300
To bonus	6,200
Dividend (22.4 per cent. viz.: 5.60 yen share)	112,000
Carried forward	812

THE KEIHLIN ELECTRIC RAILWAY CO.—The following report and recommendations of the directors were approved at the meeting of the company held December 26th, 1908:

	Yen.
Net profit	177,402
Brought from last balance	11,518
Total	188,920
To reserve	9,000
To bonus	8,000
Dividend (10% per annum)	159,375
Carried forward	12,545

THE ORIENTAL CONSOLIDATED MINING CO.—This company recently declared a dividend of $0.50 a share for the year.

UNITED SERDANG (SUMATRA) RUBBER PLANTATIONS, LTD.—This company has paid a dividend of 5% and carried forward £4,984.

BENGAL-DOOARS RAILWAY.—The total to the credit of profit and loss for the year ended June 30th, 1908, was £34,668 which included £17,701 brought forward from former account. Out of this the preference dividend was paid and an interim dividend of 1.5%, leaving £21,482 to carry forward to next account.

THE BENGAL AND NORTH-WESTERN RAILWAY.—The balance to credit at the end of the fiscal year, 1908, was £144,809 out of which a dividend at the rate of 3.5% was directed paid and the balance of £53,372 carried forward.

THE SOUTH MANCHURIA RAILWAY.—The general meeting of this company was held December 19th at which President Nakamura presided and in his speech gave the following information in regard to the operations of the line: "The total revenue of the main line during the term amounted to 4,183,000 yen and shows an increase of 209,000 yen over last term, the average revenue per diem being 44.11 yen per mile, an increase of 2.39 yen compared with that of the previous term. In expenditure the average expense per diem was 23.99 yen per mile which was a decrease of 1.96 yen as compared with the figure of last term. The Antung line showed a very satisfactory report as well. The gross receipt of the colliery mining reached 1,320,000 yen netting 502,000 yen. The total output of coal amounted to 204,000 tons being an increase of 199,000 tons over the figure of the previous term. What is very satisfactory is that the company was able to enjoy a good income as hitherto after paying 1,300,000 yen as the interest of its loan of 60,000,000 yen. The connection with the Chinese Eastern is still in course of negotiation at St. Petersburg. But the doubling work of the line is making headway and by July next the new line will be opened to traffic as far as Suchiatung. The shipping and hotel business and harbor construction works are all showing a good result. As to the mining business although the company is at present working only Fushun colliery its daily output has reached something like 970 tons whilst it stood at only 360 tons at the time of the transfer to the company. The company is paying special attention to the local administration and along with the gradual increase of population the company has started a project to establish ten towns at important places along the line. There are twelve hospitals already established by the company at various places and meanwhile the company has started many useful works such as the establishment of fire brigades, electric tramways, electric lighting and gas works, some of these being already completed. The traffic of Europeans has greatly increased of late. The grain and cereals exported from North Manchuria to Shanghai are almost entirely conveyed by the line. A large quantity of beans is now exported to England. A great change is expected on the future of Manchurian trade with foreign countries.

The Company's accounts and distribution for the term were as follows:—

	Yen.
Net profit	771,794
Brought from last term	1,602,496
Total	2,374,290

Legal reserve	38,590
Dividend to shareholders (6 per cent. per annum)	60,000
Special reserve	500,000
Bonus	67,000
Carried to next account	1,708,700

THE MANILA BUILDING AND LOAN ASSOCIATION.—The report of this association for the half year ended December 31st, 1908, shows an earned dividend of 20% per annum for the term and a balance of ₱3,171.

THE BENGUET CONSOLIDATED MINING CO.—At the annual meeting of this company held in Manila, February 2nd, the report for the year showed a net profit of ₱38,070.45. No dividend was declared and the amount carried forward. The company will expend a large portion of the surplus in increasing the capacity and extending the operations of the company. Superintendent Eye's report, which was presented at the meeting, demonstrates that the mines are in a flourishing condition. Over ₱200,000 value was added during the year to the ore reserves and bullion was taken out to the value of ₱91,190.80. The directors elected for the year were: Messrs. M. A. Clarke, C. L. Stone, C. C. Cohn, W. L. Blackett, J. W. Haussermann, and A. W. Beam. The directors are sanguine of a large dividend this year.

PHILIPPINE COAL

Provincial government officers in the Philippines, in their last annual reports, make references to deposits and mining of coal in their respective regions, among which may be noted the following:

The lieutenant-governor of the sub-province of Abra, with headquarters at Bangued, states that there are two coal mines in that region, one at Bacooc, in the township of Lagangilang, and the other at Mount Tayab, in the municipality of Bangued. The governor of Sorsogon states that in that province the deposits of minerals consist of coal, marble, gypsum, and sulphur. The provincial governor of Surigao reports that coal is found in Sinagahain, Banacan, and Taga, Tandag; in Bislig, Hinatuan; and in Loreto, Dinagat. The governor of Zambales, writing from Iba, says that the mineral wealth of that province if exploited would put the country in good condition financially. There are valuable mineral deposits in its soil which have already been located and recorded in the office of the provincial secretary—there being coal, silver, gold, etc.

The governor of the province of Albay describes the development of the coal deposits of that section as follows:

"The coal deposits of the island of Batan have come into no little prominence only recently, and it would be remiss not to advert to the subject. Coal is being mined in Batan and ships are being coaled therefrom. A mine on the coast owned and operated by private parties is producing, it is reliably reported, 70 tons per day, and merchantmen, coast-guard cutters, and other craft to the number of 22, are buying the coal they consume from this mine, which is giving satisfaction.

"Up to the present time coal mined in Batan is of the surface variety, but as the tunneling progresses beyond, the quality becomes better, and ere long it should be, as tests heretofore made determine it to be, the equal, if not the superior, of Australian and Japanese coals.

"In some respects it is unlike any other bituminous coal, if it may be thus classified. It reduces to a fine white ash under heat, forms no clinkers, and vapor rather than smoke escapes from its combustion. It has to be used differently from any other coal, and should be banked in the furnace and kept banked; under no circumstances should it be stoked. The furnace, furthermore, should be provided with fine grate bars close together.

COMPARISONS WITH OTHER COAL—DEVELOPMENT PROSPECTS

"Its cleanliness, cheapness, and tremendous heating capacity commend it to mariners especially, and in time it is confidently thought bunkers will require no more space for a supply of Batan coal for a voyage of any particular number of days than is now required for Australian coal, the difference at present being about 20 or 25 per cent against Batan coal, which difference is more than made up in the low cost of Batan coal."

GREAT ACTIVITY IN RAILROAD WORK

The Philippine Railway Company is pushing its construction work in the Visayan Group of Islands with great vigor. This Company now has about five thousand men working and is expecting to increase this number to six or seven thousand during the favorable dry season which is now approaching and will last for the next six months. Good European grading, track and masonry foremen, re-inforced concrete workers, timekeepers, and civil engineers are needed on their lines.

THE TRADE OF HONGKONG

Sir F. W. Lugard, in the course of his general report on the annual Blue Book for the year 1907, writes:—

The year was characterized by continued severe depression in trade. The Colony appears to have recovered from the over-speculation indulged in in anticipation of the conclusion of the war between Russia and Japan, and her trade has resumed a healthier condition, though the volume is still restricted. The large stocks accumulated during the speculative period have taken a long time to work off, and fresh imports have been small, because for various reasons, one of which was caution induced by previous overspeculation, China has imported a smaller quantity of merchandise. The assessment made in July for the year 1907-8 showed that the rateable value for the whole Colony has decreased by 2.52 per cent. In New Kowloon a remarkable increase from a rateable value of $38,930 to one of $61,835, or an increase of 58.83 per cent., was shown. In the New Territories continued progress has been observable in the making of several roads by the private enterprise of villagers, and by the erection of new houses. The Crown Rent (Land Tax) was paid with an alacrity that was almost inconvenient; and there was a marked decrease in crime in spite of the large numbers of coolies employed on the railway works.

"The total revenue from all sources was $6,602,280, or $432,731 less than in the previous year. All the main sources of revenue show an excess over 1906 with the exception of licences, rent of Government property, interest, and land sales. The expenditure for the year was $5,028,553, exclusive of public works extraordinary; inclusive of that item it was $5,757,203, or $1,075,407 less than the total expenditure of 1906. Deducting from the actual receipts for 1907 the total actual expenditure, there was a surplus of $845,076 on the actual working of the year.

SHIPPING AND TRADE

"The total of the shipping entering and clearing at ports in the Colony during the year 1907 shows an increase of 77,908 vessels of 2,281,042 tons when compared with the corresponding figures for 1906, in which year there was a decrease of 1,437,823 tons due to loss of local vessels in the typhoon. The greater part of this is due to internal traffic—'steamships not exceeding 60 tons plying within the waters of the Colony.' If local trade be eliminated, it is found that the remaining figures show the respectable increase of 3,110 vessels of 579,814 tons. This increase is distributed as follows:—British ocean-going vessels, 59 ships of 26,698 tons; foreign ocean-going vessels, 334 ships of 627,380 tons; British river steamers, 364 ships with a decrease in tonnage of 212,137 tons; foreign river steamers, 239 ships of 76,075 tons; steamships not exceeding 60 tons, 703 ships of 29,739 tons; and junks in foreign trade, 1,411 vessels of 32,059 tons.

"Accurate figures regarding the import and export trade of the port are not obtainable but the aggregates show an increase of about 360,000 tons in imports, of about 191,000 tons in exports, and of about 518,000 tons in transit cargo. The total reported import and transit trade of the port for 1907 amounted to 23,819 vessels of 11,512,223 tons, carrying about 8,237,000 tons of cargo, of which about 4,841,000 tons were discharged at Hongkong. Similarly, the export trade of the port was represented by 23,841 vessels of 11,520,608 tons, carrying about 3,049,000 tons of cargo, and shipping about 729,000 tons of bunker coal.

"During 1907 the price of refined sugars in the East still further declined, principally as a result of the lower cost of raw sugar, but also owing to the determined competition of Japanese refineries seeking to capture the local refineries' old-established Chinese connections. The quantity of sugar refined in Hongkong was, however, larger than for years past, and was disposed of in China and other markets, although at a loss in some instances, and on very small margins of profit in others. By the end of 1907 the strenuous competition from Japanese quarters had, however, exhausted itself, and it is confidently expected by those best able to form an opinion, that local industries will be able to maintain and improve their position. The demand for yarn during 1907 was even more unsatisfactory than during the previous year, which was undoubtedly due to the failure of almost every yarn shop in the Colony.

MISCELLANEOUS

"The amount received from sales of Crown Land was $161,459, being $154,274 less than the receipt for the previous year. This falling off may be attributed to the continued depression of business throughout the year and to general tightness of the money market. The estimated population of the Colony at the middle of the year under review was 414,308. During the year considerable progress has been made in rendering existing domestic buildings rat proof as a preventive of plague. During the year there were 198 deaths from plague, compared with 842 in 1906, and 287 in 1905."

TO CONTRACTORS

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—SEALED PROPOSALS or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.
J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

CAMOTE-CLAYTON MINING CO.

The 3-stamp prospecting mill erected on this property for testing purposes ran 23 days last month and crushed 138 tons of ore.

The results from the plates were 61 ounces of gold worth approximately ₱1830.—As the tailings assay ₱14, this gives a total value of ₱27.26 per ton. The work of developing the 40-foot lead on this property is steadily progressing and it is hoped that by next year sufficient ore reserves will be in sight to warrant the erection of a 25-stamp plant.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

THE KEIHLIN ELECTRIC RAILWAY CO.—This company has decided to establish a park at Haneda as an attraction for athletic organizations in Yokohama and Tokyo.

LONG WIRELESS MESSAGE.—The Hokkaido wireless station reports that on January 8th communication was maintained with the Chiro Maru at a distance of 1012 miles to sea.

YOKOHAMA ELECTRIC RAILWAY CO.—The city assembly has given the railway permission to reclaim part of Yoshida Creek for the purpose of constructing permanent way for their line.

NAYOGA ELECTRIC LIGHT.—The report has been received that this company has concluded arrangements for a loan from a British Syndicate for the purpose of carrying out the program of the company.

WEATHER OBSERVATORY AT CANTON.—The authorities at Canton are making preparations for the establishment of a modern observatory. The plans are under way and the funds have been arranged for to cover the initial expenses.

BANGKOK TELEPHONE EXCHANGE.—A system is being installed capable of accommodating 800 subscribers and which may be extended as the patronage increases. The new exchange will be located in Post Office Building No. 1 over the old exchange.

JAPANESE TELEPHONE EXTENSION.—The budget for next year provides for the expenditure of yen 1,200,000 in the extension of the system and the establishment of exchanges. During the next four years it is proposed to expend yen 4,200,000.

THE KYOTO ELECTRIC LIGHT CO.—This company is making arrangements to operate a railway and install electric light service between Fukui and Ono-machi, a distance of 22 miles, and will utilize power from the Nakao hydro-electric generating station.

PEKING-CHINESE ELECTRIC LIGHT CO., LTD.—This is the style name of a new company recently organized in the capital of China for the purpose of supplying light and power. The promotors believe that they have a profitable field for their enterprise.

WIRELESS AT CHINESE MANEUVERS.—The apparatus for the installation of two wireless stations was recently ordered by the Chinese government and supplied by Messrs. Siemssen & Co. of Hankow. They will be utilized during the Autumn Army Maneuvers and maintain communication between Wuchang and Hankow.

THE HYDRO-ELECTRIC POWER CO.—The failure to secure the necessary guarantees for the British capital interested in this proposed venture in Japan, has resulted in a set back to the project. The Industrial and Fifteenth Bank refused their endorsement for the reason that the banks' charters do not permit them to do so.

SHANGHAI'S NEW TELEPHONE EXCHANGE.—The contract for the equipment of the New Telephone Exchange was recently awarded The British Insulated and Holsby Cables, Limited, through their agents, Messrs. Scott, Harding & Co. The contract covering the supply of the machinery and its installation amounts to £16,686.18s. 6d.

RANGOON ELECTRIC TRAMWAY.—The total number of passengers carried on this system, according to the report for the year ended December 31st, 1907, was 6,026,915 against 3,433,540 the previous year. The running mileage was 973,187 and receipts Rupees 5,68,603 against 328,180 miles and receipts Rupees 2,75,753 during 1906. The first electric car was started on this system on December 15, 1906, and the entire system was controlled by electric power on March 1st, 1907.

GENERAL ELECTRIC INVADES JAPAN.—The Jiji Shimpo is responsible for the announcement that the Shibaura Company and the General Electric Company of the United States will form a joint company for the purpose of establishing an extensive plant for the manufacture of electric apparatus with a view to supplying the needs of the Philippines and South China as well as Japan. The capital is said to be one million yen of which 700,000 yen have been subscribed by the General Electric. It is also stated that the company will increase the capital stock of the company in the near future to 4,000,000 yen of which the General Electric will take 51%.

RAILWAYS AND RAILWAY SUPPLIES

NANKING-PUKOW RAILWAY FERRY.—It is proposed to instal a railway ferry between the terminus of the Shanghai-Nanking Railway and the Tientsin-Pukow line.

TIENTSIN-PUKOW CONSTRUCTION.—The ceremony attending the turning of the first sod of the South Section of this line was performed by their Excellencies Lu-Haihuan and Tuan Fang on January 2nd.

CANTON-HANKOW LOAN.—The negotiations for a loan of 20,000,000 taels from the British and Chinese Corporation are still under way. The proposed loan is to be liquidated in fifty years and at 4% per annum.

KOKURA RAILWAY CO.—This company has secured a charter from the Japanese Government for the construction of a line between Tomino and Haramachi about five miles in length and estimated to cost about a million yen.

KITAYAMA RAILWAY CO.—This company has secured a charter from the Japanese government to construct a line about 24 miles long connecting Narugo and Yoshina. It was organized last year with a capital of yen 750,000.

SOUTH MANCHURIAN RAILWAY ENTERPRISE.—This company is reaching out for trans-continental traffic over its line and has offered free wharfage, coal at the lowest possible rates, and an abundant free supply of water for steamers calling at Dalny.

F. M. S. RAILWAYS.—The sum of eight millions will be expended by the Federated Malay States on the government railways this year out of which over a million will be spent in construction. The estimated revenues for the year are placed at $5,200,000.

LOCOMOTIVE FOR THE PEKING-KALGAN.—A Mallet Compound Locomotive fitted with quadruple cylinders for use on the heavy grades of this line was delivered last month. It will take the place of two engines used at each of the most difficult sections of the line.

HANKOW-SZECHWAN RAILWAY.—His Excellency Chang Chih has been appointed High Commissioner for this proposed line and will at once proceed to carry out the program of construction and especially in making early connection with the Canton-Hankow line.

KOWLOON-CANTON RAILWAY.—It is reported that the big tunnel will be completed by the end of April and with it one of the most difficult tasks set before the engineers in charge of construction. After that there will be little difficulty in completing the British section in less than two years.

SOUTH CHINA RAILWAY PROJECTS.—The construction of the Canton-Macao line is contemplated; and the Fatshan-Kaochou line which is to make connections with the Lienchou-Kiungchou, the Kinchou military line and the Lienchou-Nanning line, is also under advisement by the Board of Posts and Communications.

KAIFENG-HSIANFU RAILWAY OPENED.—This railway was completed and opened to traffic as far as Honanfu on December 26 making in all 226 kilometers of open line. The charter for a line from Kaifengfu to Hsianfu via Honanfu was granted a Belgian company in 1903 and in April, 1907, connection with the Peking-Hankow at Chengchow was made. This line runs through the most fertile and prosperous sections of Honan and Shensi.

PEKING-HANKOW TRANSFER.—On January First the Chinese Government represented by H. E. Liang Shih-yi, Director General of the Chinese Imperial Railways, took over the control of this line from the Belgian Syndicate, the full amount of the redemption having been arranged. This is the most important line in China and its redemption is indicative of the policy of the Chinese government to redeem its pledges and undertake control of her railways at the earliest possible moment.

SINGAPORE TO BURMA BY RAIL.—With the opening of the Singapore Penang line the *Rangoon Gazette* says: "Perhaps the day will come when it will be possible to extend the Penang line northwards through the Siamese States to the Burma frontier, where it would join with a railway through Tenasserim, of which the proposed Maulmain-Yeh line is the first link, but that day is far distant. Much work has to be done on both sides of the frontier before such a scheme will be within the range of practical politics.

JAPANESE RAILWAY CONSTRUCTION.—The gross profit of the government railway for the next fiscal year is estimated at 38,100,000 yen. Subtracting from the sum 29,900,000 yen to be carried to national debt adjustment fund to be used for payment of interest of the railway bonds and others there will remain the net profit of 8,100,000 yen. Of the sum 600,000 yen will be set aside as reserve while the remaining 7,500,000 yen is to be used for the fund of new construction and improvement. However the construction and improvement fund being estimated at 29,100,000 yen the shortage amounting to about 21,600,000 yen is expected to be accommodated by loan.

CHINESE NATIONAL RAILWAY ASSOCIATION. The following regulations have been issued by the Board of Posts and Communications for the Association: (1) there shall be a President and two Vice-Presidents to be elected by ballot of the Constituent Companies who are entitled to one vote each; (2) the Directors General, Deputy Directors General and Chinese Engineers-in-chief of the Constituent Companies are eligible for election as President; (3) the Board shall appoint an official to superintend the election of Presidents on the 1st day of the 8th Moon every year, who are to hold office for one year only; (4) the Association shall consider and decide on the engagement of all officials and the purchase of materials; (5) the Constituent Companies shall contribute towards the expenses of the Association according to the length of their railways as follows—100 to 500 li $500 per annum, 1000 li $1000 per annum and so on proportionately, and (6) the Head Quarters of the Association shall be situated in Shanghai.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

DREDGING CAUSEWAY BAY.—The work of deepening the bay for the purpose of securing an adequate typhoon shelter for Hongkong is being pushed rapidly.

DALNY HARBOR IMPROVEMENT.—The South Manchuria Railway has completed arrangement for a further deepening and enlargement of the harbor with a view to making that port the distributing point for the ports of North China.

NAVAL DOCKYARD AT WUCHANG.—The Viceroy of Hupeh is greatly interested in the establishment of a dockyard at Pehshi Chow for the purpose of constructing and repairing the vessels of Yangstekiang Squadron. An inspection of the Foochow Dockyards is being made with that end in view.

NEW DOCK AT SINGAPORE.—The *Singapore Free Press* announces that the contract for the construction of the new graving dock at Singapore has been given to Messrs. Topham, Jones, and Railton, who finished recently the new Admiralty dock at Gibraltar. There are at present harbour improvement and dock works in progress at Singapore involving an expenditure to the Colony of between two and three millions sterling. The contractors engaged are Sir John Jackson, Limited (mole and harbour reclamation), Westminster Construction Company (wharf accommodation and dock), and now this new contract.

VLADIVOSTOK COAST DEFENSES.—The bill for coast defenses at Vladivostok has been passed by the Duma. Its principal features are said to be that the Port Admiralty, which existed in Port Arthur before the War, will be transferred *en bloc* to Vladivostok; that a sum of £2,400,000 roubles will be devoted to constructing a torpedo station; that 2,600,000 roubles will be applied for constructing a dock, and that further appropriations, the exact amount of which is not stated, will be made for improving the forts and their armament. In consequence, however, of the somewhat straitened condition of Russia's finances, the sum actually allotted for the above purposes in the current year's budget will not exceed 400,000 roubles.

LARGE FLOATING CRANE FOR THE KAWASAKI DOCKYARD.—This equipment was recently delivered to the dock company and successfully tested, with a load of 185 tons. It was built by Messrs. Cowans, Sheldon and Co., Ltd., of Carlisle. The jib is fitted with two lifts—namely, for 150 tons at 86 feet *maximum* radius and 20 tons at 96 feet radius, and can be worked at 26 feet radius. The motion is effected by a pair of heavy steel screws connected to the back of the cantilever, and driven from a pair of horizontal steam engines situated in the hold of the barge. The framework of the crane is of braced form and of steel work throughout, the height from water-level to jib-head pulley at *maximum* radius is 90 feet. The barge was built by Messrs. Denny Brothers, Dumbarton. It is 100 ft. long, 70 ft. wide, and 12 ft. deep, and of steel construction throughout. The barge is fitted with all necessary capstans and fairleads, and the crane is capable of putting boilers on ships of larger dimensions than either the *Lusitania* or the *Mauretania*. Water ballast is employed.

THE NEW SINGAPORE BRIDGE.—During the past six months James Pollock, Sons, and Co., of Lloyd's-avenue, have been sending out as required the 1,300 tons of steelwork which it is to contain, and in a short time now the opening ceremony should take place, says the *London and China Express*. There are two roadways, each 30 ft. in the clear with 7 ft. 6 in. sidewalks, supported by three girders of 192 ft. span, capable of carrying heavy electric cars as well as ordinary wheeled traffic. The longitudinals are well proportioned bow-string girders—the type which possesses perhaps the greatest artistic possibilities; while the overhead cross bracing consists of a series of beautiful arches, through which the roadways pass. At a distance the porticos appear highly ornate, but on a closer inspection it is seen that the interlacing lines of the "pattern" consist of diagonal braces and the like, each of which has its own function in the general scheme. Thus the structure—for the initial design of which every credit must be given to the municipal engineer, Mr. R. Peirce, M. Inst. C. E.—is as praiseworthy from the aesthetic as from the utilitarian standpoint.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

FORMOSA-KOBE LINE.—The Sakaru Maru has been chartered by this line and made its initial trip in the new service on January 10th.

HONGKONG DOCKS.—The Steamer Tarlac of the Tabacalera fleet is to be repaired at the docks. This company reports prospects for 1909 very bright.

SAGHALIEN SALMON.—The Japanese authorities are endeavoring to develop the salmon fisheries of the island and the prospects of activity in this direction are promising.

LIGHTHOUSE FOR ISE BAY.—The Japanese government has provided for the expenditure of yen 35,000 for the installation of a light at Kamijima in the Irap Channel.

CHINESE SHIPBUILDING COLLEGES.—The Board of War has directed that shipbuilding and gun manufacturing colleges be established in Kiangsu, Chekiang, Fokien, and Hupeh.

MINNESOTA SCHEDULE.—This steamer will make Manila a port of call arriving April 20th and will return to Seattle starting April 22nd via Hongkong and Japan, excluding Shanghai on that trip.

TWO NEW STEAMERS FOR THE PACIFIC.—These vessels will be of 15,000 tons register each and will be constructed for Messrs. Andrew Weir & Co. to join the Suveric and the Kumeric in the service between Puget Sound Ports and Victoria and the Far East.

SHIPPING COMPETITION IN PACIFIC.—The Pacific Mail and the Oriental Steamship Co. have reduced freight rates by about 20% as the result of the keen competition following the placing of the Tenyo Maru and the Chiyo Maru on the Toyo Kisen Kaisha trans-Pacific run.

Hokkaido Fisheries.—The yield of these well-known fisheries have fallen off to 38,000 koku from a yearly yield of 120,000 ten years ago. The government is considering the installation of hatcheries in the rivers in that vicinity. The seaweed industry has also fallen off materially.

China's Naval Program.—The decision has been made by the Ministry of War and the Naval Department that three cruisers be built for service in Northern waters and two cruisers, two defense vessels and four torpedoers are required for service in Southern waters. The Chihli and Kiangnan provinces will pay half the cost.

Chino-Siamese Mail Boat Co., Ltd.—This company, organized with a capital of Ticals. 3,000,000, has secured a charter to operate a line of steamers calling at Siamese ports, Singapore, Hongkong and the Chinese ports, is practically the first exclusively Asiatic venture financed by Asiatic capital and to be managed by Asiatics.

South American Line.—The Toyo Kisen Kaisha will reopen its line to South America next April with the steamers America Maru, Hongkong Maru and the Kasado Maru, sailing every other month. Upon the completion of the Kenyo Maru, the sister ship of the Chiyo, this year, it will replace the Nippon Maru and the latter will also be placed on the South American line.

The Kawasaki Dockyards.—The vessels under construction at the Dockyard or ordered include two of 8,600 tons each for the Nippon Yusen Kaisha; three for the Osaka Shosen Kaisha; a torpedo-boat destroyer for Siam; and four dredgers for the Government and Tokushima Prefecture. A steam turbine for a battleship building for the Imperial Navy is also being made at the Dockyard.

Two More Trans-Pacific Services.—With the completion of the Western Pacific Trans-Continental line and the Grand Trunk Trans-Continental line, the North German Lloyd and the Cunard will each inaugurate a service connecting the respective terminals of these two roads with Far Eastern ports. The German line will extend its lines so as to connect San Francisco with European ports.

Japanese Deep Sea Fishing.—The deep-sea fishing operations carried on by the Japanese in northern waters are said to have been very successful this season. Their total captures of seal and sea-otters exceeded last year's figure by 12,000 head, although the number of ships (38) employed remained the same. The actual catch was 82 sea-otters valued at 41,000 *yen* and 13,373 seals valued at 532,750 *yen*.

Shroud Island Light.—This light was installed and began operation in November. It has an elevation of 233 feet and is visible for a distance of 21 miles. The illuminating apparatus is dioptric, revolving, group-flashing, of the Fourth Order, showing five white flashes in quick succession every 20 seconds. The approximate power of the flash is 14,000 candles. Approximate position:—Latitude, 27 deg. 38′ N.; Longitude, 121 deg. 3′ E.

Australian-Dalny Line.—The South Manchuria Railway Company is greatly interested in the establishment of a service with Australian and way ports to connect with the railway terminus at Dairen. It is claimed that the distance from Australia and Dairen can be covered in 30 days and that the balance of the trip by way of Siberia to Europe would not extend over a period of 15 days. The time to Europe from Australia at the present time is about two months by the present route taken.

Hirano Maru.—This new steamer recently built by the Mitsubishi Dockyards started on its European trip last month. This vessel was constructed for the Nippon Yusen Kaisha and its dimensions are as follows: Length 482 feet 9 inches; moulded 465 feet; Breadth, 56 feet; depth, 34 feet 6 inches; tonnage gross, 8,770 tons; horse power, 7,300. Speed sixteen knots. She has three decks and her propelling machinery is of the latest and best description. She is built entirely of steel and is lighted throughout with electric lights.

Tanjong Pagar Board.—The new tender Malay constructed by the Board was launched last month at Keppel harbor. This vessel was built for the P. & O. Company for passenger service to and from the boats in the Roads.

The tender is 70ft. between perpendiculars; 14ft. beam; 7ft. moulded depth; and 6ft. draft. Her engines, also made by the T. P. D. B., have 10in. high pressure and 20in. low pressure cylinders, with a 12in. stroke. Her boilers are 7ft. 6. by 8ft. and are made to stand 135 lbs pressure. The boat is designed to travel at 9½ knots.

MINES, MINERALS AND THE METAL TRADE

Tongkah Tin Dredging.—The output of this company for the month of December was 510 pikuls.

Fushen Coal Mines.—A Harbin advice announces that these mines are forwarding over 150 cars of coal to that point monthly.

Sumatra Mining Industry.—The announcement is made by the *Indische Mercuur* that tin deposits have been discovered on the Sitingkei River.

Amalgamated Chendai-Menglembu Tin Company.—The announcement is made of the flotation of this company in London with a capital of £100,000.

Fushun Coal Export.—The South Manchurian Railway is reported to have met with success in placing its coal in South China and will extend its operations to Singapore.

Printing Machinery for China.—The Government Mint and Printing Office has ordered a modern minting machine and printing machine the latter to be used for printing bank notes.

Gold and Silver in Shantung.—Around Pingtu gold is said to have been found; while silver has been discovered in Chang Chin prefecture and there is much excitement among the people.

Kurun Gold Mines.—The report to the Ministry of Agriculture, Industry and Commerce is to the effect that the profits from the working of this property were enormous during the last six months.

Szechuen Mining Co.—The Viceroy of this province has secured the privilege of organizing a company with a capital of taels 4,000,000 for the purpose of developing the mineral wealth of that section.

Copper Deposits in Chinetao.—H. E. Chen Chao-chang, Governor of Kirin, has reported to the Waiwupu the existence of rich copper deposits in Chientao. He advises that steps be taken without delay to open the mine.

Peking Syndicate Coal Mines.—Many hundred tons a day are being turned out by these mines, but according to the *Peking and Tientsin Times*, the native dealers prefer the product of the Shangkou mines which lie alongside those of the Syndicate.

Sarawak Mineral-Production.—The Rajah Mines at Sadong produced over 18,000 tons of which about 2,000 tons were exported. The gold production reached 70,000 ounces all of which was exported and over 2,000 tons of antimony during the year 1907.

Hamamatsu Iron Works.—The projected establishment of an iron works at Hamamatsu by the government has been abandoned as the result of the general works postponement. Several businessmen of the place and Tokyo are said to be planning to open an iron works at the place by private enterprise with assistance of Marquis Inouye.

Irkutsk Gold Returns.—During July, August, and September, this year, in the Irkutsk local gold-smelting laboratory there were received 160 poods, 26 funt, 90 zolotniks, and 38 doli (84.574 ozs. Troy) of slimes, and the resulting gold in ingots was 155 poods, 38 funt, 13 zolotniks, and 42 doli (83.088 ozs. Troy). The amount paid therefore was 2,883,481 roubles.—*Mining Journal.*

Discovery of Aluminium Mine.—An extensive mine of aluminium is said to have been discovered at Akataki, Fujiwara, Shioya-gori, Tochigi-ken. Prof. Yarita of the Engineering College of the Tokyo Imperial University conducted experimental boring, and found the ore contains about 20 per cent. of oxidiged aluminium. The mine is so rich that the exposed portion alone measures 30 feet in breadth and 600 feet in length.

Petroleum in Niigata.—The total yield of crude oil in Niigata during last year was 1,808.520 koku (71,804,212.1160 gallons). This was refined into 516,000 koku of lighting oil 4,057 koku of essential oil, 152,870 koku of light oil, 107,727 koku of machinery oil and 279,801 koku of heavy oil. On the other hand the total value of foreign oil for lighting use imported to Japan during eleven months from January to November last year reached 14,202,544 yen.

Indo-China Smelting Corporation, Limited.—Private company. Registered November 9, by Birkbeck, Moreton, Thompson & Co., 20 Copthall Avenue, E. C., with capital £16,000, in £1 shares, to carry on the business of smelters, refiners, reducers, crushers and purifiers of and dealers in ores, mattes, base bullion, slag, metals, minerals, and other substances and compounds, &c. The subscribers are to appoint the first directors. Qualification (except directors appointed prior to statutory meeting), 100 shares.—*Mining Journal.*

South Manchurian Syndicate, Limited.—Private company. Registered November 2, by Christopher & Roney, 33 Cornhill, E. C. Capital £50,000, in £1 shares (25,000 preferred ordinary). Objects: To acquire and hold concessions, lands, mines, mining rights and properties in Manchuria or elsewhere; to adopt an agreement with the Newchwang Syndicate, Limited, and to carry on the business of financiers, bankers, capitalists, &c. The first directors (to number not less than two nor more than seven) are to be appointed by the signatories. Remuneration, £100 each per annum and £50 extra for the chairman. Registered office: 16 St. Helen's Place, E. C.—*Mining Journal.*

Gold Dredging in Burma.—The Burma Gold Dredging Company, Limited, obtained, during 1907, 3,837, ounces of gold as compared with 2,300 in the previous year, says the *Rangoon Times*. The Company works above Myitkyina, and has now four dredgers at work. It has recently been granted a license to extend its operations to points in the Malika and Nmaikha rivers, 5 and 10 miles respectively above the confluence, and now hopes to obtain a larger outturn. Several prospecting licenses for gold were issued during the year, but there are at present no certain indications of the existence of gold in paying quantities elsewhere than in the Irrawaddy river near Myitkyina. As in previous years alluvial gold washing on a small scale without the aid of machinery was carried on in many different places throughout the country.

Indo-Chine Mineral Output.—*The Mining Journal* states that the production was 27 kilogrammes in 1904 (gold 18, silver 9)—viz., a total of 61,545 frs., mined by 332 miners on a single grant of 212 hectares, which in January 1908 produced 240,000 frs.

Indo-China appears to have a mining future as promising as that of New Caledonia. The coal industry ranks first with a Lias coal outcrop, 150 kilometers long in the district from Dongtrieu in Tonkin, and other secondary basins. Mining, however, is yet in its infancy, though in 1906 the leading mines—Hongay—produced 247,960 tonnes of coal and 90,788 tonnes of briquettes, and 249,921 of coal and 92,901 of briquettes in 1907. Then there are the alluvial tin deposits which are in the initial stage of mining—zinc, copper, argentiferous lead, antimony, and also, it appears, cobalt, mercury, and very extensive iron deposits.

Coaling Plant for the Mitsu Bussan Kaisha.—This equipment ordered from Messrs. Head, Wrighton & Co. of Thornaby-on-Tees is described by the *London & China Express* as follows: The apparatus is to be used for loading the coal brought to Miike Harbour by train into ships alongside the wharf, and each machine somewhat resembles the headgear of a mine mounted on wheels. It consists of an inclined set of rails supported by vertical columns 72ft. high at the front, and mounted on four-wheeled trucks, which run on rails parallel to the quay. At intervals of 20 ft. along the wharf there are pits in which inclined rails are so laid that they will form a continuation of the travelling track if this is fixed opposite the pit. The coal is discharged from the railway wagons into hoppers above these pits, and thence into a skip running on the inclined rails. This is then hoisted up the portable track by an electric winding gear until it is at a convenient height, when the contents are automatically tipped into a shoot reaching out over the ship's hatchway. To effect the automatic tipping the skip is provided with wheels of different gauges, those at the front running on tracks within the main rails, which carry the back wheels. The upper ends of the inner rails are bent over into a horizontal direction, so that as the skip approaches the top of the hoist its back is canted up, relatively to the front and the contents discharged. The shoot is made in four telescoping sections, and together with the tilting rails can be adjusted for height to suit the ship being loaded. The whole of the gear is worked by two electric motors using continuous current at 550 volts. This is obtained by transforming 2.200 volt alternating current by means of motor generators fixed on the plant. There is room for two lines of railway to pass beneath the shipping gear, and the capacity of each unit is 500 tons per hour.

FINANCIAL AND MISCELLANEOUS

New Lumber Yard at Cebu.—The Cotabato Lumber Co. of Cotabato has opened branch offices at Cebu.

American Leaf Tobacco in Japan.—The import of tobacco has decreased in value from 1,900,000 four years ago to yen 300,000 last year.

Rubber Statistics.—The world's supply of rubber for 1908 was 55,000 tons and the consumption, 67,500 tons. The average price for the year was 4s. 1.75d.

Kyoto Electric Railway Loan.—The report has been received to the effect that this company has concluded arrangements for a loan of yen 1,000,000 through Messrs. Samuel & Co. of Kobe.

Matheson & Co. Now Joint Stock Company.—This company has been registered as a joint stock company with a capital of £500,000 sterling. Mr. William Keswick, M. P., is the chairman of the new company.

Formosan Sugar Mills.—The correspondent of the *South China Morning Post* writes that the Kagi provincial government received seven petitions for permission to instal sugar mills ranging from 40 to 150 tons capacity each.

Japan's National Debt Adjustment Fund.—The sum to be carried into the national debt adjustment fund next fiscal year is 153,100,000 yen from general account and 29,900,000 yen from special railway account making the total of 183,000,000 yen.

Japanese Postal Transfer Deposits.—The postal transfer deposit was first adopted in March 1906 and the number of depositors has reached 17,320 and the sum paid in from January 1908 this year up to the end of November amounted to 185,084,777 yen.

Miyako Bank.—A company has been formed in Tokyo with a capital of yen 1,000,000 to purchase the Tokyo Chuwo Ginko. The directors are: Mr. Tanaka, (President), Mr. T. Tanabashi, Baron R. Ozaki, Mr. Y. Ichikawa, Mr. J. Onozawa, (Directors), Mr. G. Furukawa, (Auditor).

Bean Export from Manchuria.—Over 50,000 bales of the soja bean has been purchased by British buyers for the London market and the demand is growing. It has been discovered that the oil is suitable for lubricating and culinary purposes and that the residue is especially adapted for fodder. According to the Mainichi, the consignments are increasing in size and number.

Cotton Manufacture in Japan.—It is reported, says the *Japan Times*, that the Fuji Gass Spinning Company is about to double its capital of 8 million *yen* for the purpose of erecting mills to manufacture cotton stuffs. The site of the new factory will be Koyama, and 2 millions out of the 8 will be obtained by a first call upon the new shares, the remaining 6 millions being borrowed abroad. The factory will have a thousand looms.

Japanese Tea Export.—During last year there were 31,846,062 lbs. of tea exported from Yokohama, Kobe and Shimidzu. The quantity shows a decrease by 1,830,732 lbs. on that exported during the previous year, 1907. The decrease, it is alleged, is attributable to the presidential campaign in the United States. The principal destinations of the tea exported were: New York, 12,132,663 lbs. Chicago, 11,763,153 lbs.; San Francisco, 5,638,736 lbs.; and Canada, 4,311,510 lbs.

Japan-China Direct Trading Company.—A company is being promoted by Mr. Li Yun, chief of the Shanghai Branch of the Japan-China Association, and Mr. Twang, proprietor of the Industrial Institution of the same place, with other businessmen for the purpose of carrying on an import business direct from Japan. The capital will be about a million yen and it is expected that many subscriptions will be realized among the Japanese merchants of Osaka and Kobe.

Reorganization of the Peking Syndicate.—The proposed bill as drafted follows:

"The existing capital of the company which amounts to £1,540,000, divided into 1,500,000 Shansi shares of £1 each and 39,900 ordinary shares of £1 each, and 2,000 deferred shares of 1s. each, is by this Act reorganised and converted into 3,080,000 shares of 10s. each, all ranking *pari passu*.

Of the said shares 1,323,104 shares credited as fully paid up shall be treated as belonging to those members of the company who at the commencement of this Act hold Shansi shares, and in proportion to the Shansi shares held by them respectively, and 718,200 shares shall be treated as belonging to holders of ordinary shares in proportion to the ordinary shares, and 450,000 to holders of deferred shares, and the residue of 588,696 shares shall be treated as unissued shares with nothing credited as paid up thereon.

The company shall issue to the existing holders of Shansi shares 122,282 sinking fund certificates of the company of £10 each, one sinking fund certificate in respect of every 10 Shansi shares.

Co-operative Credit Societies in Eastern Bengal and Assam.—The official review on the working of Co-operative Credit Societies in Eastern Bengal and Assam for the year 1907-03 records a decided increase in the strength of the movement in the Province during the period, says *Capital*. At the commencement of the year 60 Societies were in existence, of which 12 were Urban, while the additions during the year amounted to no less than 75, of which 9 were Urban and 66 Rural Societies, and all—with one exception—are reported to be now working. The capital of the Urban Societies amounts to Rs. 1,03,044 and of Rural Societies to Rs. 1,62,728. Loans amounting to Rs. 1,54,821 were issued during the year as against Rs. 30,717 in the year 1906-07. The rate of interest charged on Loans was 18¾ per cent, in Eastern Bengal, and 12½ per cent. in Assam. Comparison of the above rates with those charged by local money-lenders has revealed the fact that the latter range from 37½ per cent. to 75 per cent, per annum, while in some localities in Eastern Bengal they are as much as 150 per cent! A case specially mentioned is one in which compound interest on a loan of Rs. 15 was demanded by the money-lender at the rate of 1,340 per cent. per annum, and on which the Court granted a decree for simple interest at 131¼ per cent, per annum, holding that this was the usual rate in the locality.

*LONDON, ENGLAND, METAL MARKET

January 9, 1909.

The following are to-night's (Jan. 8) prices of metals:—

COPPER	£	s.	d.		£	s.	d.
*Tough cake and Ingot	67	0	0	..	67	10	0
*Best Selected	67	0	0	..	67	10	0
*Electrolytic	68	10	0	..	69	10	
*Sheets and sheathing	77	0	0	..	—		
*Flat bottoms	80	0	0	..	—		
STANDARD †Cash	62	18	9	..	—		
STANDARD †Three Months	63	13	9	..	—		
*Copper tubes, seamless per lb.	0	0	9½	..	—		
*Lake	69	10	0	..	70	10	0

* Less 3⅓ per cent. † Net.

ALLOYS.

	£	s.	d.		
Brass: Wire	0	0	6⅞	..	—
,, Tubes (solid drawn)	0	0	7⅞	..	—
,, Sheets	0	0	7½	..	—

TIN.

	£	s.	d.		£	s.	d.
English ingots, f. o. b.	128	0	0	..	128	10	0
,, bars	129	0	0	..	129	10	0
,, refined	130	0	0	..	130	10	0
Straits... Cash	128	7	6	..	—		
Straits... Three months	129	15	0	..	—		
Australian spot	—			..	—		
Banka (in Holland) Cash	131	10	0	..	—		
Banka (in Holland) Three months	132	0	0	..	—		

LEAD.

	£	s.	d.		£	s.	d.
Spanish or soft foreign	13	3	9	..	13	5	0
English pig, common	13	7	6	..	13	10	0
,, L. B	13	17	6	..	—		
,, sheet and bar lead	14	7	6	..	—		
,, pipe	14	17	6	..	—		
,, red	16	10	0	..	—		
,, white	18	0	0	..	—		
,, patent shot	16	10	0	..	—		

SPELTER.

	£	s.	d.		£	s.	d.
Silesian ordinary brands	21	5	0	..	21	7	6
,, special brands	21	10	0	..	21	15	0
English Swansea	21	15	0	..	22	5	0
Sheet zinc	23	15	0	..	—		

ANTIMONY.

	£	s.	d.		£	s.	d.
Antimony	32	0	0	..	34	0	0
,, Crude	13	10	0	..	14	0	0
,, Ore (basis 50%)	9	0	0	..	10	0	0

QUICKSILVER.

	£	s.	d.		
Flasks, 75 lbs. warrants	8	10	0	..	—

MANGANESE.

Ore, c.i.f., U.K. ports.	Per unit.*				Per unit.*
1st quality, 50 per cent. and upwards	0	0	9½	..	—
2nd quality, 47 per cent. to 50 per cent	0	0	8½	..	—
3rd quality, 40 per cent. to 47 per cent	0	0	7½	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.	Per ton.
98-99 per cent. guaranteed	170 0 0 ..	175 0 0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
Abrasives.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2 00
Acids.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb	1.10-1 75
Antimony, needle	"	.05-06
Arsenic, white	"	.05-055
red	"	.07½-.70
Asphaltum.—		
Trinidad	ton	28 00-30.00
California	"	21.00-27 00
Bleaching Powder, 35%	100 lbs	1.25-1 40
Blue Vitriol	lb	5 00
Bone Ash	"	.02⅞-04
Borax	"	.04½-0[illegible]
*Caps detonating	M	-7.50
Cement.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" " "	2.25-2 90
Rosendale	300 " "	.85
*Green Island	375 " "	2 75
*Alsen		8.00
Clay, China.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
***Coals.**—		
Batan, at Mines	ton	3 00
Australian	"	5 50
Copper	lb	.13-.14
***Dynamite** 40%	"	20
Feldspar ground best	sh. ton	10 50-15.00
Fire Brick, American	M	30.00-40 00
Imported	"	30 00-45.00
Fire clay, St. Louis Mill	ton	2.50
Fuse—Blasting	1,000 ft.	7 50
Graphite—Ceylon, lump	lb	.04-.10
Large lump	lb	.07-.10
Gypsum—Fertilizer	sh ton	7 00
Powdered	sh. ton	12.00-20.00
Lead	lb	-.04
Magnesite-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
Manganese Ore, 80-85%	sh. ton	20.00-50 00
Mercury, export flask	75 lbs	36 00-39.00
Paints and Colors.—		
Litharge American P'w'd	lb	.06½-.06⅞
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green pure, bulk	lb	26
Turpentine, spirits, bbl	gal	.44½-4
White lead, Am. dry	lb	.05⅞-0
Am. in oil	"	.06½-06
Zinc, white, Am. extra dry	"	.05⅞-.05
Phosphates, Acid	per unit	65-.7
Florida hard rock	lg. ton	10.25-10 5
Land pebble 68%	"	5.25-5 5
Potassium Cyanide (98-99%	lb	.18-.19
Platinum	oz	28 00
Platinum, Scrap	oz	17 00
Spelter	lb	.045-046
Nickel Small lots	lb	.50-.60
***Powder**, black blasting A	lb	.15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½-13
Imported, arsenical	" "	.12-.12½
Saltpeter crude	100 lbs	4.50-5 00
Silica, Lump quartz	lg. ton	5 00-6 00
Ground quartz ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 7
Silver	oz	.55½-.55
Sodium cyanide (100% KCN)	lb	.1
***Steel**, octagon drill	lb	
Sulphur, Louisiana prime	lg ton	22.
Roll	100 lbs	1.85-2.
Flowers sublimed	"	2 20-2.
Talc—Domestic	sh. ton	15 00-25.
Italian, best	"	35.00-40.
Tin	lb	.9½
Zinc, Sheet	100 lb	7.
Dust	lb	.05⅞-.06

*Manila quotation.

HEMP STATISTICS, 31st JANUARY, 1909.

(Courtesy of C. S. Nicholson, *Secretary, Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st Aug. 1908		480,986 *Bales*
Arrivals of hemp at Cebu up 31st Aug. 1908		174,438 *Bales*
		655,424 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales*
Total		784,783 *Bales*
Export to all ports to date 31-8-08	620,949 *Bales.*	
Local consumption estimated at	3,200 "	624,149 *Bales*
Total stocks at Manila and Cebu on 1st September, 1908		160,634 *Bales*

EXPORT OF HEMP, JANUARY, 1908.

Date	*Vessel*	*London*	*L'pool*	*Atlantic U.S.*	*Pacific Kast & California*	*Continent*	*Australia*	*Other Pts.*	*Total Bales*
Jan. 2	Inveric				2,718			100	2,818
" "	Rubi					950			950
" 5	Tean	1,050						150	1,200
" 7	Benlomond	9,957				1,545			11,502
" 8	Eastern							150	150
" "	Meinan	4,900				200			5,100
" "	Loonsang					39		250	289
" "	Zafiro	2,000							2,000
" "	Dakotah				1,948				1,948
" 15	Rubi					700		50	750
" 16	Yawata Maru							352	352
" 18	Morven	2,450							2,450
" 21	Keenum				2,314				2,314
" 23	Yuensang					22			22
" "	Zafiro	600	500			650			1,750
" 21	Tean.........Cebu	3,728				675			4,403
" 26	Benledi		9,811			283			10,094
" 27	Isla de Panay		550			236			786
" 28	Benmohr	7,104				2,585			9,689
" 29	Loonsang		200					552	752
" "	Rubi	500	500			250			1,250
" 28	Kenley.......Cebu			13,688					13,688
" "	Sungkiang......do	125						40	165
" 30	Morven..........do	725							725
		33,139	11,561	13,688	6,980	8,135		1,644	75,147

Average price current month of January, ₱9.75

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for February, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14,000,000 i $250,000	$2,005,774	30-6-08	Interim of £2 for first half year—@ ex 1|9⅞=$21.942.	5¾	$895 £86
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,090 $150,000	$10,223	31-12-07	$2 (London 3|6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$190 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7|6 making 15|- for 1907	5½	Tls. 100 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$830 sales & b.
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-07	$12 and bonus $3 for 1906	8½	$187½ sales
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $346,097	$372,432	31-12-07	$6 and bonus $2 for 1906	7½	$106 sales
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	f $13,802 $1,323,941	$428,047	31-12-07	$27 for 1906	8½	$330
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	$7,000	$1,035	31-12-07	$1 for 1906	....	$12 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 s $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7½	$34 buyers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $587,500 f $ 81,766 $ 17,655	$17,755	30-6-08	$1½ for first half year ending 30-6-08	8½	$30 sales
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,7	31-12-07	6|- for 1907 on pref. shares only at ex. 1|9 11|16, $3.154	5¾	$37 $17
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Interim of Tls. 1¾ for % 1908	7½ 7	Tls. 47½ buyers Tls. 52 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a|c 1908	6	45|-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$23½ buyers $15 buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,00 d Tls. 426,470 e Tls. 70,000 i Tls. 81,200 q Tls. 12,000	Tls. 6,869	31-12-07	Final of Tls. 2½ making Tls. 5 for 1907	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o 32,538 e $450,000 r $56,848	Dr. $279,371	31-12-07	$8 for year ending 31-12-06	....	$130 sales
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,132	31-12-07	$3 for 1897	....	$18
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 100 buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1|6 (Coupon No. 11) for year ending 29-2-08	....	Tls. 16¾ sellers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1|-=48 cents	....	$8¾ sales & b.
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$53,601	$3,726	31-12-07	$1½ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 s $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	7¾	$45 sales & b.
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $76,199 v $200,000	$384,847	30-6-08	Interim of $4 for % 1908	8¾	$91 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for months ending 31-10-1908	6¾	Tls. 77½ buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Interim of Tls. 4 for % 1908	11	Tls. 155 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 102 buyers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	....	$16½
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$9,178	31-12-06	$1.80 for 1906	—	$14½ buyers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $22,000	$14,639	31-12-08	Interim of $3 for % 1908	7	$90 buyers
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	7½	$90 buyers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7¾	$9 buyers

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE.	AT WORKING ACCOUNT.	DATE.*	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	¶ $50	$30	none	$653	31-12-07	$1¾ for 1907	5¼	$33 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 / e Tls. 170,000	Tls. 107,547	31-12-07	Interim of Tls. 3 for % 1908	7	Tls. 120 sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 / Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	5¾	Tls. 85 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	5½	$9 buyers
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 76
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 80 sellers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 280 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£648	31-12-07	1s. 10½d. for 1907=$1.037	11½	$9 buyers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	10½	$11½ buyers
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$5
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3,593	31-12-07	80 cents for 1907	8	$9¾ buyers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	i $10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	5¾	$13½ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Interim of 40 cents for % 1908	10	$9¾ sales
H. Price & Co., Ld	1907	$120,000	19) 15,000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12 buyers
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10	$22½ buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	6¼	$19
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,578	31-12-07	Interim of $4 for % 1908	8¾	$220 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	none	$8,191	31-12-07	Interim of $1 for % 1908	7¾	$25
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 27,603	Tls. 17,127	31-10-06	4th quarterly div. of Tls. 10 & bonus of Tls. 10 making Tls. 50 to date	5¾	Tls. 860 buyers
Peak Tramways Co., Ld.	1907	$750,000	25,000	$10	$10	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6	$14
Do. (New)			50,000	$10	$1					4	$2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	6½	Tls. 121 sales
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / w Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	11½	Tls. 122½ buyers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 437½ sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7½	$5½ sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	5	$10
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6½	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / e $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6½	$9¼ sellers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$4

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par (Plus interest)
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½ (Plus interest)
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½ (Plus interest)
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. (Plus interest)
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. (Plus interest)
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
19 12,000 issued only.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Final of Gold cents 50 making gold 10 for year ended 30th June 1907	Sept. 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500 000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,00	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1908
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250 000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	May 30, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76 000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350 000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750 000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08	Dec. 1908
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE - PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32 000	" 100	5½ ,,	Do
do 1894	,, 104	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32 600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 131 800	" 100	5 ,,	Do
do 1897	,, 9.½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 104	,, 300 000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33 900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 104	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 104	,, 150 000	" 150,000	" 100	6 ,,	Do
do 1903	,, 101	,, 4 0 500	" 490 500	" 100	6 ,,	Do
do 1904	,, 104	,, 214,500	" 214 500	" 100	6 ,,	Do
do 1905	,, 104	,, 320 000	" 32 .000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 351,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 103	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 103	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 130	5 ,,	June & Dec.
do 1900	,, 103	,, 250,000	" 2 0,000	" 100	6 ,,	April & Oct.
do 1901	,, 103	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100 000	" 100 000	" 400	5 ,,	May & Nov.
do 1902	,, 103	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 103	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar & Sept.
do 1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 103	,, 50 000	" 50,000	" 100	6 ,,	Do
do 1900	,, 103	,, 100 000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 103	,, 100 000	" 100,000	" 100	6 ,,	Do
do 1903	,, 103	,, 100 000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200 000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1897	,, 92½	,, 100,000	" 100 000	" 100	5 ,,	Do
do 1899	,, 103	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 103	,, 2,000,000	" 200 0 0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 103	,, 799 800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	,, 102½	,, 500,000	¶ " 500 000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 100	,, 110,000	" 110 000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 1908	,, 100	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, February, 1909)

Date of Formation	Capital	Capital paid up	No. o Shares Issued	Issue Value	Paid up	Reserve	Last Dividend].	Name	Buyers	Sellesr.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	......	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	6.00	6.50	6.50
1907	$300,000	225,000	22,500*y*	10	10	......		Bruang Ltd.	6.75	7.25	7.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	----	10.00	10.00
1903	£400,000	350,000	350,000*a*	1	1	......		Duff Development Co., Ltd.	3.75	3.85	3.85
1907	$400,000	375,000	37,500*b*	10	10	......		Kanaboi, Ltd.	0.50	1.00	1.00
1901	£60,000	60,000	60,000	1	1	......	2/- interim for 1908	Kinta Tin Mines, Ltd.	9.75	10.25	10.25
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	4.00	4.50	4.00
1905	$150,000	99,000	9,900*c*	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	----	4.00	4.00
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	11.00	11.25	11.25
1906	£30,000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	----	7/6	7/6
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	----	2.00	2.00
1906	£250,000	179,500	500,000*h*	5/-	5/-	......		Pahang Consolidated Co., Ltd.	26/-	27/-	26/-
			54,500	1	1	......		" " " 7% *Pref*	----	----	nominal.
1907	£100,000	80,000	80,000*j**	1	1	......		Pengkalen, Ltd.	6.50	6.75	6.50
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50	4.00	4.00
1907	$450,000	300,000	30,000*h**	10	10	......		Rahman Hydraulic Tin Mines, Ltd.	----	8.00	8.00
1905	£27,000	21,750	21,750*e*	1	1	......	1/- interim during 1907	Rambutan, Ltd.	----	8.00	8.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	7.00	7.25	7.00
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	6.80	7.00	6.80
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd.	1.50	1.75	1.50
1898	Gs2,500,000	2,500,000	25,000	100	100	......	7½% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd.	----	----	1030.00
1900	$110,000	110,000	22,000	5	5	......	10% for 1907	Royal Johore Tin Mining Co., Ltd.	0.90	1.00	0.90
1907	$500,000	500,000	50,000	10	10	......		Salak South, Ltd.	----	8.00	8.00
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	----	3.00	3.00
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd.	4.50	5.50	5.50
1899	$230,000	230,000	23,000	10	10	......	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	----	4.75	4.75
1907	£90,000	70,000	70,000*z*	1	1	......		Tekka, Limited	----	9.75	9.75
1902	£160,000	149,185	149,185*f*	1	1	......	5/- during 1907.	Tronoh Mines, Ltd.	8.50	9.00	9.00
								RUBBER			
1905	£150,000	137,062.10/-	46,500	1	1	......	10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.5.0	4.10.0	4.10.0.
			103,500	1	17/6	......		" " " *Contributory*	4.2.6	4.5.0	4.5.0
1905	$200,000	120,750	10,500*g**	10	10	7,400	12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	23.00	----	23.00
			2,100*h*	10	7.50	......		" " " *Contributory*	19.50	----	19.50
1904	£30,000	22,750	22,750*i*	1	1	......		Batu Caves Rub. Co., Ltd.	2.15.0	3.0.0	3. 0. 0
1903	£70,000	66,700	66,700*j*	1	1	......	12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	5.1.3	5.5.0	5. 5. 0
1906	$150,000	125,000	12,500*k*	10	10	......		Castlewood Rubber Co., Ltd.	3·50	4.00	4.00
1904	£16,000	16,000	10,000	1	1	......	17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	----	----	5. 12. 6
			6,000	1	1	......	20% interim for 1908	" " " " 5% *Pref.*	----	----	6. 7. 6
1905	£75,000	55,000	55,000*l*	1	1	......	5% interim for 1908	Consolidated Malay Rub. Estates, Ltd.	2.15.0	3.0.0	3. 0. 0
1906	£310,000	259,530	181,454*m*	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.0.6	2.1.6	2. 0. 6
			123,546	1	12/6	......		" " " " *Contributory*	1.6.0	1.7.6	1. 6. 0
1905	£65,000	57,500	50,000	1	1	......		Kapar Para Rubber Estates, Co., Ltd.	----	2.7.6	2. 7. 6
			15,000	1	10/-	......		" " " " " "	----	1.12.6	1. 12. 6
1906	£180,000	180,000	180,000	1	1	......	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.4.0	1.5.0	1. 5. 0
1907	£320,000	219,000	184,000*d**	1	1	......		Lanadron Rubber Estates, Ltd.	1.12.6	1.14.0	1. 12. 6
			70,000	1	10/-	......		" " " *Contributory*	18/-	19/-	18/-
1906	Gs 175,000	175,000	540	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	----	----	250.
			160	250	250	......		" " " " " *Deferred*	----	----	250.
1906	$250,000	230,950	23,095*n*	10	10	......		Ledbury Rubber Co., Ltd.	----	10.00	10.00
1895	£100,000	76,100	660,244*e**	2/-	2/-	......	20% interim for 1908	Linggi Plantations Ltd., *Ordinary*	11/6	12/6	11/6
			10,000	1	1	......		" " " 7% *Pref.*	----	----	1. 0. 0
1906	£300,000	300,000	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	1.4.6	1.6.0	1. 4. 6
			185,000	1	1	......		" " *Ordinary*	18/6	19/6	18/6
1903	£30,000	22,500	22,500*o*	1	1	......	12½% interim for 1908	Pataling Rubber Estates Synd. Ltd.	7.1.3	7.10.0	7.10.0
1906	$250,000	225,000	22,500*b**	10	10	......		Ragalla Rubber Co., Ltd. *Ordinary*	----	8.00	8.00
		25,000	2,500	10	10	......		" " " 8% *Preference*	10.00	----	10.00
1904	£20,000	10,035	2,588*a**	1	1	......		Sagga Rubber Company Limited	2.0.0	----	2. 0. 0
			12,412	1	12/-	......		" " " "	----	----	----
1904	$100,000	99,000	990*k**	100	100	......	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	295.00	300.00	295.00
1898	£30,000	30,000	300,000	2/-	2/-	......	25% interim for 1908	Selangor Rubber Co., Ltd.	16/6	17/6	17/6
1905	$500,000	500,000	5,000	100	100	......		Singapore Rubber Co. Ltd.	110.00	117.00	110.00
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd.	110.00	115.00	115.00
1905	$100,000	100,000	10,000	10	10	......	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	----	12.00	12.00
1906	£110,000	100,000	100,000*l**	1	1	......		Sungei Kapar Rubber Co., Ltd.	2.5	2.10.0	2. 10. 0
1904	£50,000	41,920	41,920*p*	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	1.15.0	2.0.0	1. 15. 0
1904	£60,000	50,600	506,000*q*	2/-	2/-	......	25% interim for 1908	Vallambrosa Rubber Co., Ltd.	14/3	15/-	14/3
								GENERAL			
1894	£5,377.10.0	4,805	7,688*c**	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025*e**	100	100	——		Brunei Oil Royalty, Ltd.	----	100.00	100.00
1907	$1,500,000	1,099,672	27,083*d**	10	10	......	5% interim for 1908	Eastern Smelting Co., Ltd.	6.75	6.85	6.75
			118,406	10	7	......					
1898	$225,000	225,000	4,500	50	50	13[illegible]00	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd.	145.00	150.00	150.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000*t* / 14,000,000*u* / 250,000*v*	£2-0-0 per share at exchange 1/9 7/8 for half year ending 30-6-08.	Hongkong & Shanghai Bank'g Corpt'n.	----	----	86. 0. 0
1905	$2,400,000	2,400,000	18,000	100	----	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd.	----	110.00	110.00
			6,000	100	----	......	7% for year ending 31-10-07	" " 7% *Pref*	----	102.50	102.50
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	----	125.00	125.00
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	----	----	150.00 nominal
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-08	Maynard & Co., Ltd.	17.50	18.00	17.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	70.00	75.00	70.00
			2,750	100	100	......	7% for year ending 31/12/07	" " " " 7% *Pref.*	97.50	100.00	100.00
1903	$600,000	240,000	24,000*r*	10	10	......	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	----	8.00	8.00
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	----	50.00	50.00
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	3/-	3/3	3/-
1904	$160,000	112,000	1,120*f**	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	----	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	----	----	130.00
1890	$500,000	495,600	4,956*i**	100	100	400,000 / 458,925*w*	5% interim for 1908	Straits Steam Ship Co., Ltd.	175.00	185.00	185.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 / 1,222,409	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	48.00	48.50	48.50

DEBENTURES

Name	Buyers	Sellesr.	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	1%	1% prem.
Riley, Hargreaves & Co., Ltd. 6% . 225,000	....	1%	1% prem.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem. nom.
" " 5% 1,878,000	6%	....	6% prem.
" " 4½% 1,600,000	3%	5%	2% prem.
" " 4% 602,900	....	....	nominal.
Straits Engineering Syndicate, Ltd. 6% 45,000	....	par.	par.
Tanjong Pagar Dock Board 5% . 1,050,000	par.	....	par.

a 50,000 unissued	*n* 1,905 unissued.	*a** 5,000 unissued.
b 2,500 "	*o* 7,500 "	*b** 2,500 "
c 5,100 "	*p* 8,080 "	*c** 916 "
d 20,000 "	*q* 94,000 "	*d** 66,000 "
e 5,250 "	*r* 36,000 "	*e** 239,756 "
f 10,815 "	*s* 465 "	*f** 480 "
g 100,000 " *Ord.*	*t* Special Gold Reserve Fund	*g** 7,400 "
h 45,500 " *Pref.*	*u* Silver Reserve Fund.	*h** 15,000 "
i 7,250 "	*v* Insurance Fund.	*i** 44 "
j 3,300 "	*w* Sundry Reserves.	*j* 20,000 "
k 2,500 "	*x* Sundry Reserves.	*k* 10 "
l 20,000 "	*y* 7,500 unissued.	*l* 10,000 "
m 5,000 to be issued to employees	*z* 20,000 "	*m* 4511 "

YOKOHAMA SHARE QUOTATIONS

Courtesy A. C. Hutton Potts, Share and General Broker, Yokohama, January, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	95 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	80 Sellers
Oriental Hotel, Ltd., Ordinary }	250,000 }	3,000	50	50	306,090.49 }		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 99.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 98.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 88.80
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 88.80
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 89.90
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 89.60
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 94.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 96.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 93.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 95.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 94.50
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 120.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	4%	June and Dec.	,, 57.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 42.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 68.60
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 29.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 108.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 91.20
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 82.40
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 35.80
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 57.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 9.05
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 39.35
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 27.55
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 73 80
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 55.00
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 10.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 81.05
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 55.60
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 78.75
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 87.00
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 13.60
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 123.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 103 00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 9.00
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	,, 137.60
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 117.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 85.00

BANGKOK QUOTATIONS

(Courtesy Messrs. Edwards & Co., Bangkok, Siam.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 410	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 190	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000 }	{ 6% & 2 Tcl. bonus for ½ year ending 2% }	Dec. 31, 1907
Siam Tramway Co , Ltd	,, —	,, —	,, 150	1905	,, 1,450,000 {	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	} ,, 1,450,000	—		{ Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co , Ltd.	,, —	,, 110	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co , Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000 {	Tcs. 270,000 } 60,000 }	{ 12½% & 2½ Bonus }	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 75	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,100	,, 1,150	1906	,, 3,000,000	3.000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co.	,, —	,, —	,, 50	1906	£ 40,000	4,000	£ 10	£4, per Share	—	—	—

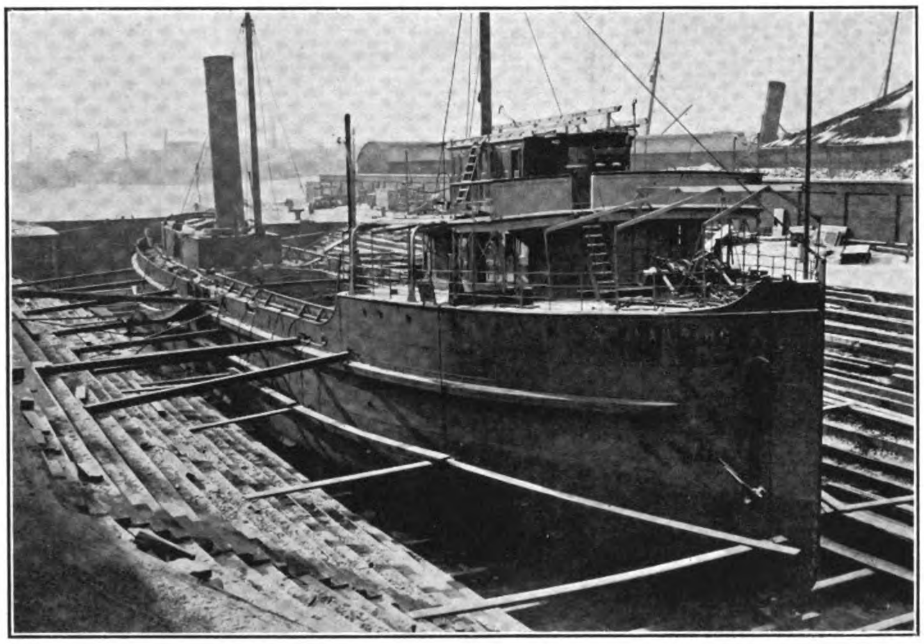
A RECORD IN SALVAGE WORK

By the Shanghai Dock and Engineering Company, Limited, on the Wreck of the Hanping in the Whangpoo River.

On the 28th of October last year, the steel screw steamer "Hanping," coming up the Whangpoo River with a full cargo of pig-iron and rails, rent a hole in her starboard side and sank in deep water on the Pootung side of the river through fouling the bow of H. M. S. "Flora" which was moored off the Bund in the Shanghai Harbor.

After the vessel was afloat the cofferdams were dismantled, the remaining cargo discharged and the vessel safely placed in dry dock within two and a half months from the time of the accident.

The salvage work was in the hands of the Shanghai Dock & Engineering Co., Ltd., who have always a large salvage plant and experienced staff ready for such undertakings. During the progress of the operations the vessel settled about seven feet in the mud and at the same time took a heavy list to port making work very difficult; at the commencement of pumping operations the depth of water on main deck was about eighteen feet, leaving only three feet of the cofferdams bare at low water.



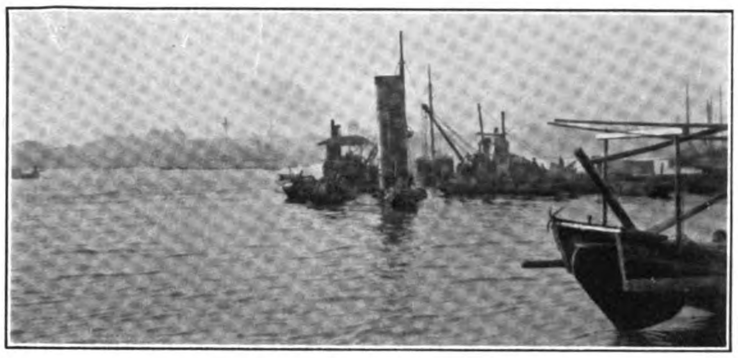
IN DOCK.

The salvage operations are not without interest, as similar problems might present themselves in other harbors, and we therefore reproduce in the present number a series of photographs which give an extremely good idea of the course adopted in order to raise the vessel.

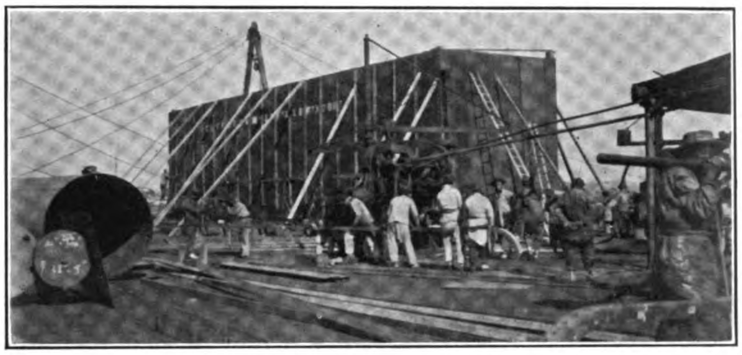
As much of the cargo as possible was discharged by means of grab dredgers; the damage in hull was temporarily patched up and the whole shell made watertight by divers; two steel cofferdams were then built, one measuring 78 ft. × 18 ft. × 21 ft. high, the other 40 ft. × 18 ft. × 21 ft. high, transported to the wreck in pieces and erected and fitted in position, one amidships over main hatch and the other aft round the engine and boiler room casing. These cofferdams were then sufficiently strengthened inside by shoring to withstand the enormous pressure that would be brought to bear upon them in the course of the pumping operations, and the decks also received similar attention.

Three large Pulsometers were suspended in the holds of the vessel discharging over the side, while six 10″ Centrifugal Pumps, placed on pontoons alongside, had their suction pipes carried through Cofferdam to ship's bottom, and on the 31st of December all pumps were simultaneously set to work delivering a volume of about 5,000 tons of water per hour, enabling the vessel to be successfully floated in about two hours.

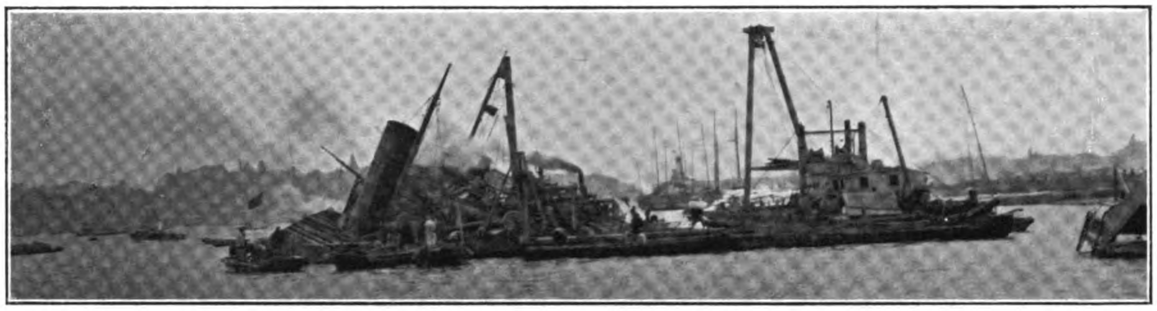
INSIDE OF ONE COFFERDAM.



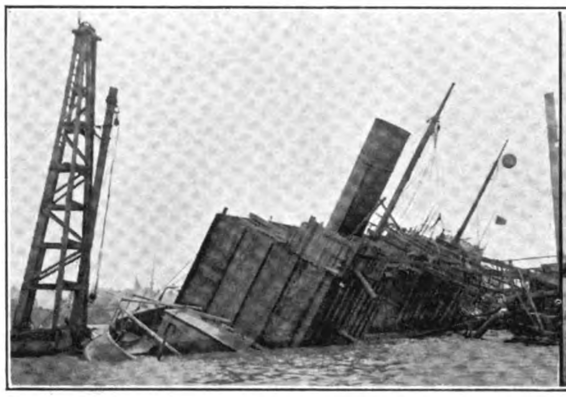
COMMENCING SALVAGE OPERATIONS



ONE OF THE COFFERDAMS UNDER CONSTRUCTION



PUMPING OPERATIONS PROCEEDING.—STERN VIEW



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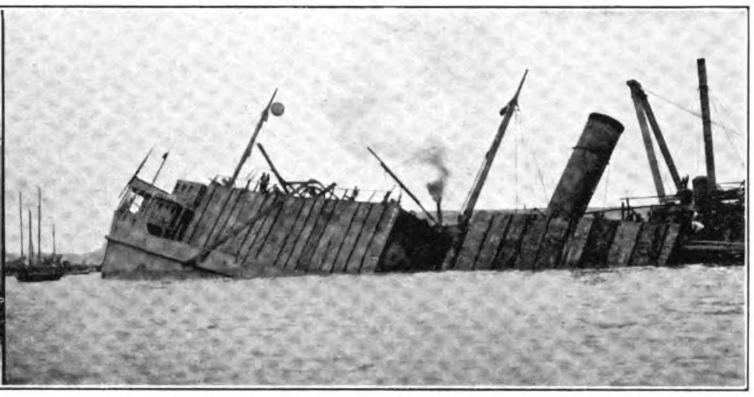
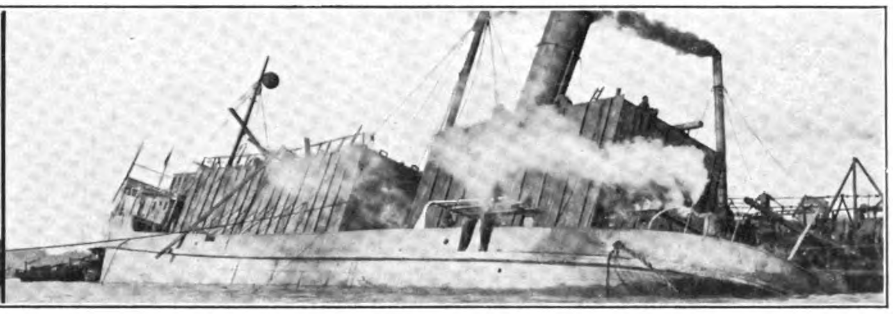


PUMPING OPERATIONS PROCEEDING.—PORT SIDE VIEW

BOW VIEW



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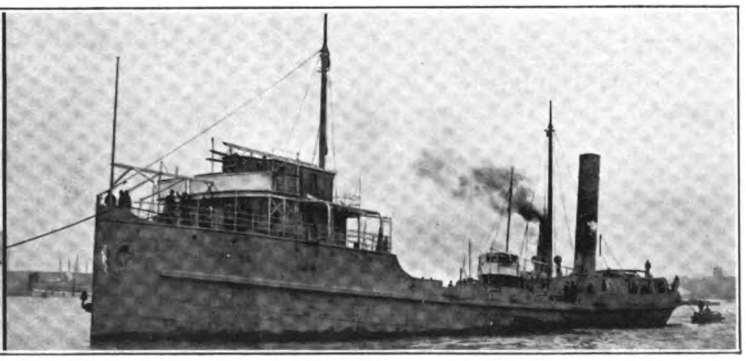

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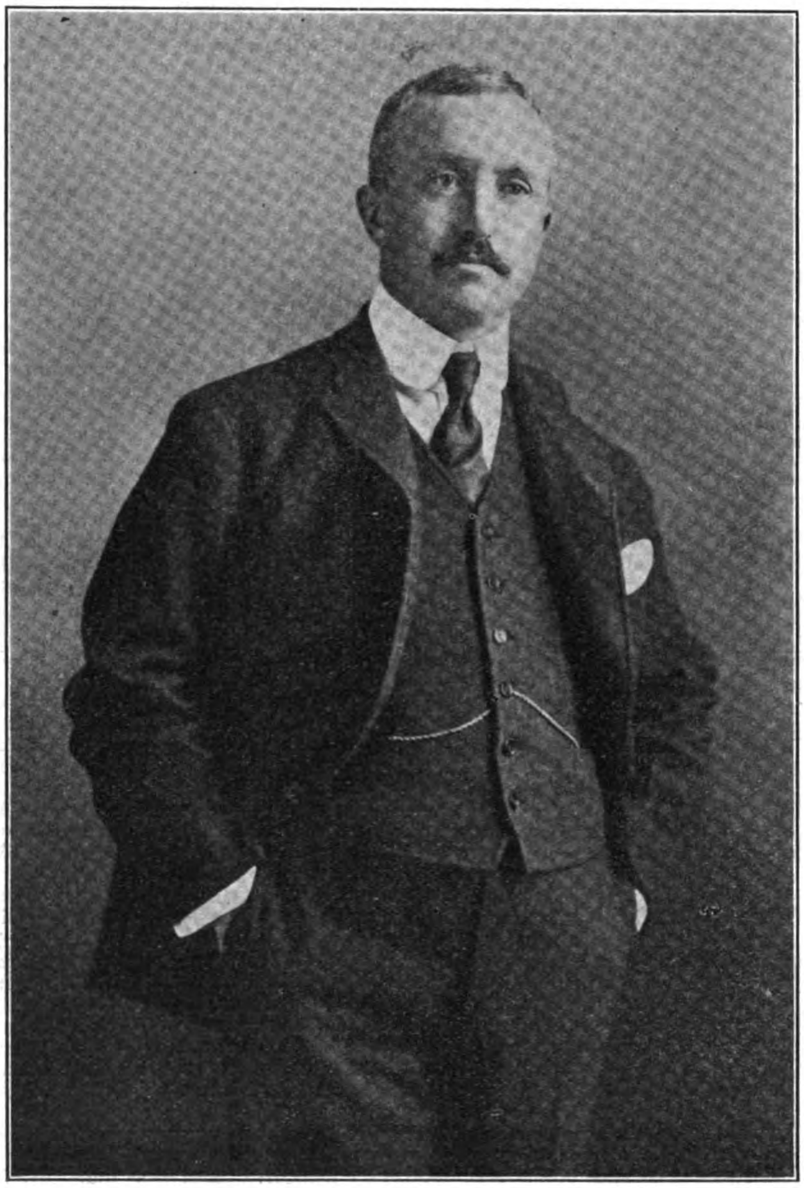

The Hon. CHARLES DENBY
American Consul-General, Shanghai

(See page 340)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

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AMERICAN CONSULS IN CHINA

(BY OUR OWN CORRESPONDENT.)

From an article on the American Consular Service in the Orient in a recent issue of "The Far East," we quote: "In the Orient no nationality, save the Japanese, has so bad a name for dishonesty as the American," and then follows a long arraignment of the Service and suggestions for its improvement. While condemning the Consular Corps, the writer lauds the new Supreme Court, which is expected to purify the Augean stables, and effectually check peculation and dishonesty in the other branch of the Service by means of more thorough supervision and prompt punishment of offenders.

And so the average newspaper writer still harps on conditions in China, previous to the Consular shake-up, and keeps America's shame continually before the world. If at one time there were dishonest officials in the American Consular Service, they have been weeded out and an entirely new set of men have taken their places, men who have already done good work for their country and effaced the wrongs alleged to have been committed by their predecessors. When we stop to think that the investigation instituted by the State Department of the United States found sufficient grounds for the removal of only three or four officials in China, a wholesale denunciation of the Consular Corps is uncalled for. When Americans still criticize the shortcomings of the few, and that for past offenses, it is not to be wondered at that other nationals refuse to believe there has been any improvement. When Americans fight and squabble among themselves and wash their dirty linen in public as in the recent campaign against Judge Wilfley, they must expect to lose face with their neighbors, and if it be insinuated by a lawyer trying a case in a British Court that it is impossible to secure justice in the American Court for China, Americans may thank themselves for the attitude of the British Judge who permitted such remarks. If British lawyers complain that the American Court is only one degree above the most corrupt Court in Shanghai, the insult must be swallowed, for Americans, themselves, have contributed to frame such an opinion by the continual flow of comment and criticism, both in the press and in the clubs. It seems time for all Americans to cry a halt.

America's Consular Service in China is to-day filled by men who have accomplished as much, if not more, than the officials of other nations in this part of the world, for the advancement of their national interests. But it would seem that to accomplish something only serves as a signal for critics to attack. It seems to be a national American failing to look for the weak spots in a man's public career, and ignore his good qualities. Instead of reward America's public servants generally receive their pay in abuse. When a British Consul, Mr. Alexander Hosie, writes extremely interesting and accurate reports on Manchuria, Szechuan and other parts of China, his Government and countrymen take notice and applaud, and his King confers on him the honor of knighthood, and as Sir Alexander Hosie he is destined for higher work and further honors. This is as it should be. When the American Consul, Mr. Davidson, writes just as valuable a report on Formosa, which is the standard work on that Island, does he get promoted? On the contrary, he has to resign eventually, because of the poor salary. When Mr. Consul Straight writes to the State Department reports on Manchuria, every bit as valuable, and just as interesting as those of his British confrère, are they published and the writer commended? Straight's report is filed away in the archives and forgotten. When Mr. Consul Fisher at Harbin carries on his shoulders the fight for a principle involving the recognition of China's sovereignty and wins out, does his country applaud? How little is known of the strenuous fight which has been carried on at Harbin by this young representative of the United States, contesting every move on the part of Russia, which threatened the rights of China and of the world at large as involved in the policy of the open door. Suffering from the effects of a tropical disease contracted while fighting for his country in the Philippines, at times hardly able to get around and attend to work, ostracised by all the Europeans in Harbin, for his so called anti-Russian spirit, with no society except the American educated Chinese taotai, Consul Fisher has stuck to his post of duty, through one of the most difficult and trying periods of America's relations with China and Russia. Do his countrymen and government encourage or reward him? Several months ago he applied for a transfer on account of his failing health. When I last saw him in December, he was just able to come from his bed to the office to say Good-Bye. His government had forgotten him, and with almost certain death before him, if he did not secure a change, he was still willing to fight it out, hoping against hope that Washington would wake up before it was too late.

Fisher at Harbin and Straight at Mukden fighting every move of Russia on one hand and Japan on the other, with the sole idea of establishing a principle and saving the Three Eastern Provinces for China, have been through a most strenuous diplomatic campaign, which reflects the greatest credit and honor on themselves and the country they represent. At any time in the fight, they could have relaxed in their attitude, which would have given the point to Japan or Russia. If China retains control of Manchuria, and reestablishes her complete authority, she can thank the two American Consular representatives of America who have carried the brunt of the diplomatic struggle on the firing line in Manchuria. If these two officials represented any other country, their efforts would be crowned by rapid promotion.

There are many other American Consular representatives in China who are holding their posts with dignity, and who deserve well of their country. Consul General Wilder at Hongkong has made an enviable record for himself, and is held in high esteem by all who have come in contact with him. Williams at Tientsin, Cloud at Mukden, McNally at Nanking have also distinguished themselves in their control of their respective offices.

The most difficult post in the American Consular Service is the one at Shanghai. It is regarded as one of the most important positions in the gift of the Department, and the Government has recently appointed the best men to the place.

The present incumbent, Mr. Charles Denby, is probably the most efficient and best equipped man who has ever held the office of American Consul General at Shanghai. The son of the late Hon. Charles Denby, for many years American Minister to China, he was reared in the country, and speaks the mandarin dialect fluently. He acted as Chargé d'Affaires at Peking during the absence of his father, and has a thorough knowledge of the country, its politics and its public men.

Mr. Denby resigned from the Government service after the recall of his father, and entered the commercial field. In the year 1900, when the Boxer uprising broke out at Tientsin, he was engaged in business in that port. His perfect command of the language and his wide acquaintance with the officials and leading merchants, singled him out as the natural friend and confidant of the many Chinese who had taken refuge in Tientsin, and who feared the Boxers more perhaps than the foreigners did. Mr. Denby's character was so appreciated at that time by the Chinese, that he was besieged by many of them for protection, and he had many opportunities to be of great service to his Chinese friends who constantly appealed to him for favors of one kind or another, which often involved life or death to the suppliant.

One of the greatest enterprises in China that was threatened by the disorders of 1900 was the China Merchants' Steam Navigation Company, operating the largest fleet of Chinese owned steamers between Tientsin, Shanghai, Newchwang and other coast ports, and controlling a number of large storage warehouses or godowns at Tientsin and Tongku at the mouth

of the Haiho. During the first few days of the shelling of Tientsin by the Imperial forts, and when it looked the blackest for the foreigners, the Director of this company placed all his ships, dwellings and warehouses in Mr. Denby's hands and left him in absolute control of the property, while he, himself, attempted to escape to Shanghai to save his person.

One who knows China, and the magnitude and importance of the enterprise concerned, will appreciate that the task which was thus thrust upon Mr. Denby by his Chinese friends was of no small proportions, and his selection for this trust was in itself a high testimonial to his standing and integrity. The immense godowns in Tientsin alone, several in number, were filled with hundreds of thousands of taels worth of grain and various merchandise, and in the condition of lawlessness prevailing at the time, control of the property entrusted to his care was difficult. The Chinese godown keepers and guards deserted their posts; the soldiers of the Allied Powers bent on marauding and foraging had to be restrained, and there was always the constant danger of conflagration to check.

For over two months Mr. Denby retained control and administration of this immense property, and, on the restoration of peace, turned it over to the foreign agent of the Company designated to receive it. Mr. Denby's attitude and conduct of the business earned for him the good will not only of those locally interested in the enterprise, but of the Board of Directors at Shanghai, who cordially thanked him and liberally rewarded him for his services.

And during that strenuous period while the Steamship Company was entrusted to his care, he was also called upon to take over the Imperial Bank of China, whose officials had also fled, seeking refuge elsewhere to save their lives. In addition to guarding these premises Mr. Denby used the basement or cellar as a place of refuge for the many Cantonese who were driven from their homes in the neighborhood of Tientsin by the Boxers. At one time over eighty of the foremost young Cantonese of the Empire, many of them graduates of American colleges, were living in this basement afraid to be seen on the streets for fear of being killed by the Northern brethren. They were guarded by Mr. Denby and fed with the rice which he had taken from the godowns of the China Merchants' Company. Some of the most brilliant young men of the country owe their lives to Mr. Denby's action at that time, among them being H. E. Sir Chentung Liang Chang, the former Minister to Washington, H. E. Tsai Shao Chi, the present Customs Taotai at Tientsin, and H. E. C. L. Chow, the present Customs Taotai of Newchwang, and many others now occupying high official positions. Mr. Denby was the recipient of many cordial expressions of gratitude from these young men and he counts them now in their exalted positions as amongst his truest and best friends.

It was due to the recognition of his high standing at Tientsin that Mr. Denby was appointed by the Allied Powers as Secretary General of the Provisional Government which ruled over North China for two years. During his term of office under the Allied rule, many improvements were initiated and carried in Tientsin, which has made the port one of the most attractive in China, and greatly enhanced the value of property. That these duties were carried out faithfully and well and met with the approbation of the Chinese and his own Government is evidenced by the fact that he was engaged by the new Viceroy of Chihli, Yuan Shih Kai, to take service as his Foreign Adviser on the termination of the Provisional Government, a position which he held until his own Government tendered him a position in the Department of State at Washington, in 1905. His promotion to the post of Consul General at Shanghai is a recognition of his peculiar fitness and qualities for this most important and trying post. And yet with such a brilliant record, and the endorsement of the Chinese and his own Government, there are those who would attempt to discredit him and ignore his splendid record.

There will soon be a vacancy to be filled at the legation in Peking, as Mr. Rockhill will probably be promoted to an Embassy. The natural and logical man for promotion is the present Consul General at Shanghai. Under any other government but the American, this promotion would be assured as a reward for faithful services.

THE PHILIPPINES SITUATION

The material development of the Philippine Islands, together with the promulgation of a most liberal policy in the government of the inhabitants of the archipelago, has proved a most difficult task for the administration, and, if not disappointing, has at least tried the patience of those in Manila to whom has been entrusted the carrying out of Washington's wishes. The failure to interest the American citizen in the homeland or to impress him with the real needs of the islands has had the effect of placing the administration in a very undesirable position as to the conduct of Philippine affairs. The policy outlined by President McKinley and since followed was conceived at a time when the problem of government suited to the oriental peoples who inhabited the islands had not been given the serious consideration and thought that it deserved. Knowledge or appreciation of any kind of government but a democracy was not then, nor is not now, general throughout the United States, nor would any other system of administration than that enjoyed on the mainland be for a moment considered by the voters there. It matters not that the Filipinos are not advanced to a stage of appreciation nor adapted to western forms of government. It was and is enough that the American nation had assumed control of Philippine territory and must, therefore, whether practical or not, extend American institutions to the island. An administration that would advocate any other form of administration would not survive the storm of protest. Indeed what little restrictions have been placed on the Filipinos, necessary to the conduct of a stable government in the islands, has met with disapproval on the part of a large section of American citizens, and who seem to be the only ones interested in the possessions. This group is known as the Anti-Imperials and who urge the relinquishment of American control and the granting to the Philippines their independence. The balance of the population are not for the moment directly interested and seem too busy with their own affairs to give the islands much thought.

Then there is the "Little American" group that comprises a limited number of citizens who have made their homes in the possessions and who find themselves under prevailing conditions relatively foreigners. They, of course, are keenly alive to the needs of the community. As a unit they criticise the policy of the administration for the reason that it places in the hands of natives the control of much of the administrative power for which they are neither competent to direct nor trained to fully appreciate. The "Little American" appreciates that lack of confidence in the government, largely shared by natives, means delay in development of the resources and, therefore, stagnation of trade

And so the administration is between two fires. The Anti-Imperialists on the one hand accusing it of Imperialism and the "Little Americans" denouncing it for its excess of liberality and its unwisdom in extending control to a people unfitted for the responsibilities of a democracy and thus discouraging investment, necessary to a full measure of development of the resources of the archipelago.

Of the two, the administration must necessarily give ear to the American voter. He it is, whether right or wrong, is "running the show" after all. The Anti-Imperial vote counts on election day and there is the vote of greater importance than this section that must not be stirred up. Should it be bruited abroad during the campaign that the administration was running a colonial enterprise in the Philippines, following the example of European countries, there would be trouble of a serious nature in the form of a slump in administration support.

The "Little Americans" out in the islands, having forfeited their residence and right to vote, may have a good cause and voice it vigorously, but without the ballot, they must forsooth remain unrecognized in the formulating of that policy which affects them directly and which in reality should not apparently prove of equal direct interest to those in the homeland who make the greatest row about it.

But that is the situation in the Philippines and will continue until the American people are brought to an appreciation of the real needs of the islands and are convinced that, while a democracy may serve the best interests of the citizens of the United States, that it might prove a menace to the best interests of the natives of the Philippine Islands, at least until a few centuries of training are indulged such as the Anglo-Saxon found necessary to develop himself into a citizen fitted for a place in a modern self-governing community.

After ten years, the administration may look back to a decade of great activity, but it must admit that what has been accomplished is the result of American and foreign initiative. That is the discouraging feature. Whatever may be charged against the Administration, it must be said that no possible means whereby the native might be encouraged to take hold and secure for himself the greatest possible returns for effort has been neglected. But it must be admitted that with all this opportunity, and indeed with the preference shown him, the native, generally, has failed to respond, and a large section, it must be said, devotes much energy to antagonizing the government and prejudicing the masses against the kindly disposed and paternal administration.

The recent strikes in Manila and the one now in progress against the Manila Electric Railway are one evidence of the attitude of a section of the native community. Not one of the men involved but were receiving more than ten times the wages any one of them could secure before American Occupation. So far as can be learned, the great majority of them were satisfied with their wages and the hours of labor. But a certain element, which has gained in size and boldness since America's liberal policy was inaugurated and who needed the box receipts, by soft words and great promises, first induced contributions and then advised them to force the company to increase their pay by walking out. The result is that the strikers are now out of pocket, out of jobs and rich only for that amount of experience. The agitators who led them astray never did an honest day's work in their lives nor have they any intention of perspiring in the very near future.

The strike in shipping circles was the initiative movement, and the same agitators made a handsome rakeoff from that quarter. While not a remarkable success, it secured a partial recognition for the organization and gave courage to the agitators. Then followed the tramway strike on its heels. The Street Railway Company has only been inconvenienced, continuing daily to maintain its service. It has now more than enough motor men and conductors undergoing a course of training to supplant the strikers, and in a few days everything will be running as smoothly as ever. But the strike demonstrates the power of the agitator and the degree of suffering among the ignorant which his influence involves.

Governor-General Smith, who has ever endeavored to encourage and counsel the natives and by every evidence of personal interest and kindly treatment shown his sincerity in his desire for the welfare of the people, finds at the close of his term as Executive a most undesirable condition and one that must in the end prove a great drawback to the development of the country. Governor-General Smith has endeavored to deal justly with all and loyally promulgate the policy of the administration in its broadest interpretation. While just, he has been firm, when occasion required, and not a few native demagogues have received their lessons. He has served his country in the islands continually since 1898 and no American is more familiar with the needs of the situation. As evidence of the regard in which he is held, the friendly attitude of the members of "The Old Guard" remaining in the islands towards

him and their absolute belief in his uprightness and singleness of purpose, are the most substantial. Ever ready to respect the opinions of others whether in agreement with his own or not, and with an open mind at all times where the advancement of the islands was best served, he has proven a most desirable Executive and one whose departure will be a matter of general regret. Perhaps no more characteristic utterance of the Governor-General and the man may be quoted than the following excerpt from his message to the Assembly last month and which has a bearing on the subject in concluding a review of the situation:

"While the condition of peace and order which exists in the Archipelago is eminently gratifying, the advancement which has been made to a more cordial understanding and to a better feeling between Americans and Filipinos is not so flattering. Certain elements, both Filipino and American, encouraged by another element whose motto is "A plague on both your houses," seem to have set themselves to work to cultivate race hatred and to create a condition of ill will between the two peoples which can serve no possible purpose save the evil one of defeating the altruistic policy laid down by America for the government of the Philippines, and of dashing to the ground the hopes and ideals justly dear to every honest, patriotic Filipino. Both peoples seemed to be well on their way to a status of mutual trust and confidence until misrepresentation and calumnies, on the one side, and unwarranted abuse and harsh criticism, on the other, set the ball a rolling in the opposite direction. On the one hand the Filipino political demagogue, whose one ambition is to get an office, sought to create the false impression among the masses that the purpose of the United States was to exploit and oppress instead of to uplift and assist the inhabitants of the Philippines, for whose welfare and betterment she had become responsible. To gull the unwary he sowed broadcast promises which he knew could not and would not be fulfilled and to the lasting detriment of his country he essayed to instill into the hearts of his people for his personal advantage a venomous distrust of the unselfish nation, the kindly intentions of which had been proved by a hundred beneficent deeds. Every measure which the experience of the American Government had shown to be in the interests of the people and for their benefit was made the object of his mendacious attacks. Sanitary measures, whether for man or beast; the promotion of railways; the building of roads; encouragement to the investment of foreign capital; the tariff on foreign rice, imposed for the benefit of the Filipino farmer; the internal revenue; the recoinage of the money of the country in order to prevent financial ruin by its exportation therefrom; the system of public instruction designed to give to the people a common language and a common means of communication; the land tax, which is absolutely necessary for the support of provincial and municipal governments and their successful development; the tax on alcohol and tobacco, recognized all the civilized world over as legitimate subjects for taxation; and practically every other means of acquiring revenues to maintain the Government, were made the objects of assault and deliberate misrepresentation. On the other hand, the American who had not forgotten the late unpleasantness, the American who was out of sympathy with the policy laid down by the lamented President McKinley, persistently adhered to by President Roosevelt and carried into effect by the Hon. William H. Taft, the Hon. Luke E. Wright, and the Hon. Henry C. Ide, had no hesitation in falsely representing to the world that the Filipino was an idler, that he was treacherous, ungrateful, corrupt, immoral, incapable of progress, and unworthy of any consideration except as a hewer of wood and drawer of water; all this in the face of the record which shows a low percentage of crime even in the large cities and speaks most eloquently of the law-abiding nature and morality of the people; all this in the face of the recognized culture of the educated Filipino and the status of Filipino businessmen, lawyers, doctors, pharmacists, writers, and artists; all this notwithstanding the fact that the Benguet Road, the Manila Street Railway, the Manila, Cebu, and Iloilo port works, the Manila sewer system, and the Manila waterworks are monuments to the energy and industry of the Filipino workingman; all this notwithstanding the fact that every machine shop, factory, hemp laté, sugar plantation, rice field, and market in the Islands speaks eloquently of Filipino industry and of the value of the Filipino as a laborer; all this notwithstanding the fact that 5,000 Philippines Constabulary, 5,000 Scouts, and 4,000 Philippine civil service employees are rendering faithful service to the Government and have proved their loyalty under the most trying circumstances; all this in the face of the fact that thousands upon thousands of Filipinos, undeceived by designing agitators or selfish politicians, have openly manifested their deep appreciation of privileges conceded, rights recognized and liberties brought to them by American rule.

"Under any circumstance the fomenting of race hatred can secure little, if any, benefit to mankind and is pregnant with evil consequences to every project which requires for its success harmony and good will. In the Philippines it is especially deadly, as it makes for the failure of all altruism in dealing with the situation and invites the defeat of hopes and ideals which otherwise might be realized and enjoyed.

"The American who dedicates his energies to ill-timed and intemperate abuse of the Filipino is sowing the seeds of ill will from which he can expect nothing other than a rich crop of racial prejudice, detrimental not only to his own business interests but also to the general commercial and industrial development of the country. While forgetfulness of his own best interests may be pardoned, the promotion of a condition which must arrest the material prosperity of the country in which he lives can hardly be overlooked, much less his unmindfulness of promises to which the national honor of his own country has been solemnly pledged. And the Filipino who plays upon the worst passions of the human heart, and who delights in the un-Christian task of poisoning his brother's cup with unworthy suspicions and hateful distrust, gives some ground for the unjust belief that his people are unmindful of benefits received and helps to alienate the sympathy and affection which are so necessary for the realization of all the hopes and ideals of his race.

"Soon I expect to lay down the burdens of office in the Philippines and my last counsel to my countrymen, especially to those who served with the flag, is to be as zealous and ardent in carrying out in time of peace the policies to which our country is inevitably committed as they were in maintaining her prestige and supremacy in time of war.

"And to the Filipino people, to whom I am bound by many ties of gratitude, sympathy, and friendship, I have one last word to say, and that is that until the great majority of the citizens, and not a small minority, have been prepared for the intelligent use of the franchise, until democratic customs and usages have permeated and become a part of the daily life of the people, until the power of the unconscionable agitator and demagogue has been broken, until education has created a just public sentiment which specious arguments and false doctrines can not destroy, until the citizen has not only the power to judge but the courage to act for himself, the best future of the Islands lies with the land which has given to the Filipino people freedom of speech, liberty of the press, freedom of religion worship, the right of the accused to meet his accusers face to face and to hear their evidence, the exercise of the electoral franchise, a system of free public schools, autonomy of provincial and municipal governments, the right to participate in the making of laws through a popular assembly, and many other rights, liberties, and privileges not enjoyed by peoples which have had an independent national existence for hundreds of years."

With the evidence of this organized effort to discourage enterprise and intimidate capital, it would seem time that capital must look to its protection. That ill-advised strikes at this time would surely interfere with the healthy movement of trade and the success of industrial enterprises throughout the islands must be realized and the only remedy seems for capital to prepare to circumvent the agitator and make provision against future disturbance by concerted action. The criminal laws on the statute books are sufficiently comprehensive to give ample protection if properly enforced. Not one of those leaders who are now or have been involved in the recent threatening attitude and who have inspired a boycott in the public prints against individual firms, but are liable to severe punishment. It would seem then that no expense should be spared on the part of capital to secure the very best talent and proceed vigorously against them in the proper courts, and at once.

These men are the demagogues whose influence for evil among the working classes is deplored by Governor-General Smith in his message. They have been unusually successful in evading the law and are flushed with success at the present time. This is no doubt due to the fact that capital has been patient and has not made any special effort to counteract the influence at work. We believe the time has come in this reference when patience ceases to be a virtue and that no effort should be spared to destroy this menace to progress and bring the instigators of the movement to justice.

FEDERATED MALAY STATES BUDGET FOR 1909

REVENUE

Perak	$11,861,617
Selangor	8,728,790
Negri Sembilan	1,866,767
Pahang	965,150
Total	$23,422,324

The expenditure is apportioned as follows:

EXPENDITURE

Perak	$12,353,149
Selangor	9,235,316
Negri Sembilan	2,371,023
Pahang	1,517,880
Total	$25,484,368

The deficit will be covered from surplus funds of which Perak, Selangor and Negri Sembilan have $48,465,225 to their credit while Pahang has a debit balance of over $7,000,000

TO CONTRACTORS

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—SEALED PROPOSALS or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.
J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

MINING IN KOREA*

American interests largely predominate in the mining industry in Korea. British, Japanese, German, Italian, and French interests are also represented, but the chief mining property of the Empire is that of the American company (Oriental Consolidated Mining Company) in the Usan district of northwestern Korea. This company has already taken out nearly $10,000,000 in bullion, the bullion output for 1907 being $1,150,000 United States gold; it has approximately 1,000,000 tons of average $5 to $5.20 (per ton) ore in reserve, and ordinarily crushes 300,000 tons annually. The operating expenses are estimated to be less than $2.50 per ton and the net profit at $1.85 per ton. Nominally $1,250,000 have been expended in construction work on this company's plant, and it contributes considerably over 50 per cent of all of Korea's total gold export of upward of $2,250,000 per annum.

American interests are developing two other gold properties in Korea, at Suan and Chiksan, and these promise to attract much attention in the near future. Japanese and British capital are extensively concerned in the latter property. At the former a large body of rich ore has been blocked out and the latter is known to possess extensive deposits, both quartz and placer. Americans have during the present year, secured possession of the famous Kapsan copper mines of northeastern Korea, while still other Americans have, during the past few months, been granted graphite mines in southeastern Korea, both of which promise exceptionally profitable returns. With the possible exception of the graphite properties, regarding which the final assays are incomplete, all of these mines are of known value, and they constitute in fact nearly all of the mineral properties of Korea that are now advanced beyond the prospect stage of development.

Nevertheless, Italian, Japanese, German, and French interests are actively pushing their respective mineral operations in copper, gold, iron, and graphite. Some iron and graphite properties have already been opened up by Japanese and there are deposits of lead and silver yet to be exploited. Some Japanese experts, in fact, believe iron will yet prove to be Korea's chief mineral resource. Cinnabar occurs, but no deposits worth mining have yet been located. The same applies to mica.

FINE GRINDING BY NATIVES IN GOLD DISTRICT.

Geological Survey—Native Mines.—The Japanese have completed a geological survey of the country, which has been published together with a detailed account of the mines and mineral resources of the country.

The general trend of opinion supported in this authority is in accord with the published views of many American and European engineers, viz, that Korea is a highly mineralized country, possessing an excellent climate and an abundant supply of good and cheap labor.

Very few of the prospect discoveries have yet been developed to a greater depth than a few feet, and the natives, not possessing any means of pumping out the water, usually cease work upon its appearance.

Practically all mineral deposits in Korea have been discovered by Koreans, who are considered to be good miners. They have crushed gold quartz by the primitive method of rolling a large rock upon it, and in placer mining they are credited with being among the most expert in the world. They use wooden bowls in panning, the customary size being 2½ feet in diameter.

Mining Laws and Taxes—Mineral Resources in Quartz Mines.—While the nominal substance of the mining laws and regulations, as originally extended to Korea by the Japanese protectorate, were not considered satisfactory to investors and mine promoters, the modifications made during 1908 are accepted as meeting most of the requirements of capital in mine exploitation. Technically, however, the laws and regulations may not in all cases be accepted as entirely satisfactory other than in the spirit of a friendly administrative interpretation. Unlike American methods, the administrative department in Korea has exceptional jurisdiction, and when viewed from the point of possible unfriendly or adverse administrative supervision the modified laws and regulations may be considered unsatisfactory to capital, which is proverbially timid.

On the whole the Japanese protectorate has, in addition to materially modifying the objectionable clauses of the mining laws, recently inaugurated a policy of encouraging mining exploitation in Korea by abolishing all import taxes on machinery and tools used in mining, and by adding copper and copper concentrates to the list of chief mineral products that may be exported free of duty. The protectorate has also accepted in principle the policy of utilizing timber lands in the vicinity of mines for the promotion of the mining industry, in that the concessionaires are to enjoy special privileges in obtaining the necessary lumber and fuel supply at reasonable cost.

Metalliferous deposits of various kinds have been located in nearly all parts of Korea. Up to the present time, however, the bulk of these deposits have been of small size and few of them have been opened up. Speaking generally, the northern portion of the peninsula is richer than the southern.

Gold is the principal product of Korean mines. The reported yearly output (valued at approximately $2,250,000, as shown by the customs returns) does not include a large amount of gold that is carried away by Chinese miners and others and not accounted for in the official records.

Korea's chief gold quartz mines are included in the American concession at Unsan, which was granted originally in 1895 for twenty-five years, and, as modified and extended, may be operated until 1954. At the Unsan mines a series of large quartz lodes, occurring in granite, are being mined successfully and profitably under American management.

The quartz bands in the Unsan granite formation vary from a few inches to 10 feet in width, the greatest depth reached being 1,000 feet.

Lumber and Fuel Supply.—British Concession.—As the formation between the bands of quartz is not solid, as a rule, much timbering is required. This is particularly true in the wider formations and, consequently, a large amount of lumber is necessary in successfully operating the mines.

The timber question in Korea has, therefore, received much attention as the mineral development grows more promising. While the authorities have accepted, in principle, the proposition that timber in the vicinity of mines is primarily to be utilized at reasonable cost for the promotion of the mining industry, an elaborate set of rules and regulations have been drawn up under the supervision of the Japanese protectorate and the application of the same to the needs and purposes of practical mining operations is now about to be put to the test.

Without exception it may be said that American mining interests in Korea favor the preservation of the forests without, however, endangering the successful operation of mining properties possessing vested interests based upon previous assurances of government assistance in securing an ample supply of the necessary mining lumber and fuel at reasonable cost.

The English concession at Eun-San, in Pyeng Yang Province, after being successfully operated for some years, was shut down, the deposit having worked out. The company operating this concession then took over the gold mines at Kil Sang, in Pyeng Yang Province, but unfortunately developments here, though showing some promise, did not come up to expectations, and the company closed down the mine in 1907. This property is, however, now being operated by Koreans under the management of a capable Korean engineer, a graduate of the London School of Mines.

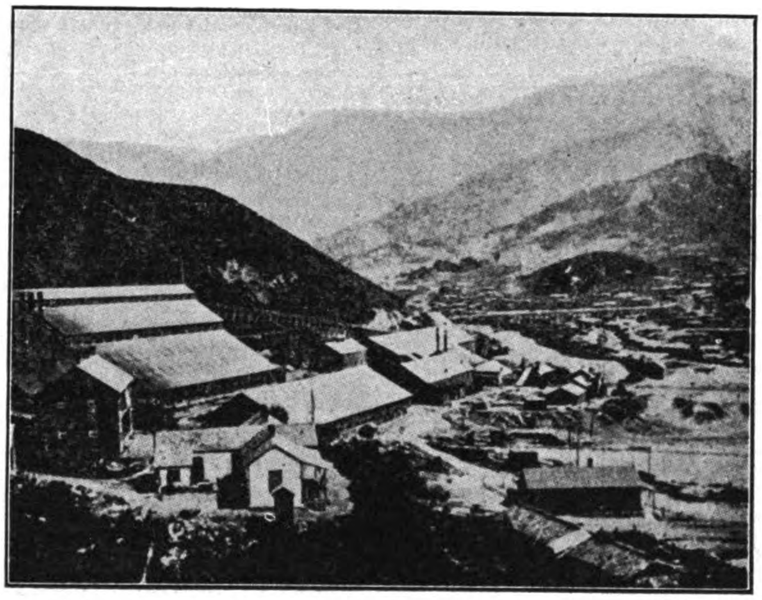
Large Concession Area—Suan and Other Mines.—Developments at the Chiksan gold mine in Choong Chung Province, central Korea, have been most promising. This mine was originally granted to a Japanese concessionaire, but is now being exploited by American-Japanese-British parties, who are very sanguine of the future success of the mine. The area of this concession, like that of the American mines at Unsan, as well as others granted prior to the establishment of the Japanese protectorate, is very large. Like areas in the United States would support a number of separate mining camps.

The Unsan concession approximates 20 by 25 miles; the Chiksan and Suan concession areas being about 20 by 14 miles each. The Kapsan area is also very large.

Of the other gold mines in the course of active development, the Suan mine in Hwang Hai Province, central Korea, and a small property situated just outside of the boundaries of the Unsan concession, on an extension of the Kuk San Dong lode, are perhaps the most important

* Consul-General Sammons, of Seoul, in *Consular and Trade Reports*.

The concession for the Suan mine was granted to the Korean Syndicate of London, but is now being operated by an American company under very encouraging prospects. The engineer in charge of this property is much pleased with the developments of a new body of ore found in the upper workings, the average value of gold to the ton of ore as indicated by the last five assays being over $20. There has not yet been an opportunity of assaying the ore for its copper contents, which are believed to represent an additional value of $5 per ton. The Kuk San Dong extension development was undertaken by a joint American-Japanese partnership, and is merely the extension of the Kuk San Dong mine of the Unsan property.



TARACOL GOLD MINING CAMP, KOREA

Another gold mine located near the American concession at Unsan is being developed by a German company with apparent satisfactory prospects.

In addition to the above mentioned, there are many mines now being developed in the native manner and in a small way by Japanese and Koreans, generally hampered by insufficient capital. None of these mines have so far succeeded in opening up anything of great importance. As a rule the gold is mined from quartz lodes in granite country. Two notable exceptions to this are the mine at Eun-San, which consisted of an irregular deposit in limestone, and the Suan deposit, which consists of an impregnation at a granite limestone contact.

Extensive Placer Areas.—Korea contains a large number of gold placers, mostly of small size and of recent age, occurring in many parts of the country, but principally in the Province of Ping Yang. The gold placers at Soo-nan, in Pyeng Yang Province, and Ham Heung, in Ham Kyeng Province, are the best known. Most of these placers have been extensively mined by Koreans, and probably the richest of them worked out.

The placer deposits on the Unsan concession are extensive and of enormous value, but as yet the cost of securing the gold does not seem to warrant any extensive operations on the placer areas.

The district of Chiksan has long been one of the most profitable placer fields worked by the Koreans. For the past three years the Japanese, who originally obtained the grant to this concession, have been successfully working portions of these placers by sluicing. The conditions for successful work of this kind have been unsatisfactory, as only gravel yielding a high average would enable them to realize a profit. There being comparatively little water and a very slight fall, all the pay dirt has been carried to the sluice boxes on the backs of Korean coolies. However, as a dredging proposition, the conditions are considered favorable. The depth of the overload varies from 7 to 30 feet, most of it being about 18 feet in depth. There are no bowlders larger than 8 or 10 inches, the majority of the overload being gravel with stones about the size of an egg. The bed rock is of soft decomposed schist, which may be dug with a spade to a depth of 2 or 3 feet. While there is very little water on the surface, there is sufficient to operate dredges.

The pay gravel occurs principally in a stratum of about 3 feet on bed rock. Recent investigations have proved that there is pay dirt throughout the entire overload, though not in sufficient quantity to make it profitable to run the same through the sluices, but of sufficient amount to be an important factor in dredging operations. It is estimated that one-fifth of the area of the concession is alluvial, although how much of this would be profitable for dredging can only be determined by accurate sampling and boring. It is not at all likely that Korea will furnish any sensational finds or nuggets of gold, but a few of these deposits may become of importance as gold-dredging propositions. Korean placer deposits have furnished a considerable proportion of the total gold output.

Kapsan Copper Mines.—The most important copper mine in Korea is the well-known Kapsan mine, situated in South Ham-Kyung, North Korea, the ownership of which, after a period of four years of negotiating between the Korean, Japanese, and American Governments, was, in June, 1908, conceded to the American claimants.

According to the report of an English engineer who examined the mine two years ago, and confirmed by subsequent examinations by other engineers about nine months later, this mine has been worked for many years and was then producing about 300,000 pounds of smelted copper annually. Analyses of this copper showed it to contain 98.02 per cent copper and unimportant amounts of gold and silver, and practically no harmful impurities, the balance being chiefly iron and sulphur.

The ore occurs as large irregular deposits in limestone, and the mine has, thus far, been worked by primitive native methods. The American concessionaires have now sent engineers to prepare detailed plans for the future operation of this property in accordance with modern methods.

It is reported that what appears to be an important copper deposit has been located in the neighborhood of Kapsan by an Italian syndicate, which has secured the necessary rights and is arranging to develop the property. A mine near Kang Kyei, in Pyeng Yang Province, north Korea, was formerly a copper producer under Korean methods, but has been shut down for some years.

So far as is known, the remaining copper mines of Korea are of small size and unimportant. They are chiefly situated in the north and extreme south of the peninsula, where some narrow veins are being prospected by Japanese in the neighborhood of Masampo.

Silver is not at present mined in Korea, although there is evidence that silver deposits exist. The same applies to lead.

Extensive Iron Deposits—Coal, Oil, and Graphite.—It is well known that there are extensive deposits of iron ore, principally hematite in Korea, mostly situated in Whang Hai Province, but little is known of their actual economic importance. The Japanese protectorate experts in mining are of the opinion, however, that Korea will ultimately become an important producer of iron, and they express surprise at the fact that Americans who are active seekers after gold properties do not turn their attention to iron as well.

While it may be accepted as true that Japan may derive much iron from Korea, it is believed that southeastern Manchuria will ultimately contribute largely to the growing demands of Japan for iron products. Thus far iron ore has been worked to a small extent in Korea by primitive native methods. Doubtless these iron ore deposits will shortly be investigated as to the possibilities of their being worked by modern methods.

Coal occurs largely in Korea, mostly in South Pyeng Yang Province. Speaking generally, it is not considered that Korean coal is of much economic value, the quality being poor, the present demand being largely supplied from Japan at from $5 to $8 per ton. However, the coal seams are little developed. Near Pyeng-Yang city there exist, near the banks of the Tai-Tong River, beds of smokeless coal said to be of great purity, but its economic value has yet to be established. As mined, the coal crumbles to dust, but it is stated that it could be manufactured into briquettes. Deposits of bituminous coal also exist, but no mine has yet reached the producing stage. It is, however, known that the Japanese authorities possess a high opinion of Korea's coal deposits.

One license has been granted for oil, but as yet boring operations have not been started.

It seems likely that in the near future graphite mining in Korea, which has hitherto been quite neglected, will become of importance. Graphite occurs extensively, and it is stated that some of the deposits can be made to furnish graphite of high grade.

Chief Mining Property.—The Unsan gold mines in Korea constitute the most important mining property in that part of Asia. While other Korean mining properties are now recognized as possessing dividend-paying resources, the Unsan mines have heretofore been the only properties operated continuously on an extensive scale by modern methods in the Empire. These mines now utilize 220 stamps, and nearly 6,000 men are employed in operating the various mining camps which, in the aggregate, mine and treat nearly 1,000 tons of ore daily, the net profit per ton, as previously stated, being about $1.85.

The only day the mills are shut down is on July 4 of each year. The bulk of the men employed are Koreans, about 5,000 of them receiving 25 cents gold per day of ten hours. If it were not for this economic wage condition, which, however, constitutes the high-wage scale of successful commercial enterprise in the Korean Empire and brings exceptional prosperity to the surrounding country, it would not be possible to operate the mines. Originally, when the cheapness and value of

Korean labor in the mines was not fully taken into consideration, it was considered impracticable to operate this rich mineral district.

Of approximately 600 Chinese employed at the Unsan mines the majority receive 30 cents per day. One hundred Japanese receive on an average $1 per day, although carpenters and blacksmiths receive much more. Of the 75 or more Americans employed the majority receive $5 per day and board. Superintendents and other officials are paid upwards of $175 per month and board. They are, also, offered special inducements in the way of transportation expenses in going to and returning from Korea.

While the average value of the ore at the Unsan mines is approximately $5.20, fifty-dollar ore has been taken out and the company has a three years' supply of ore constantly blocked out in advance. At the present time (October, 1908) the Unsan mines are more successful than ever before, the output now being greater than at any previous period in the history of the mines.

Experience with Korean Miners.—The Korean miner possesses all the good qualities of a miner with very few of his defects, being physically strong and very easy to handle. As regards the amount of work done, it is estimated that two Korean miners are more than equal to one white miner. Generally speaking a Korean miner's father and grandfather were miners before him and his son will, as a rule, be a miner. They withstand hardship, such as water and bad ventilation, much better than the average white miner.

At the Suan mine the following wages per day of 10 hours are paid: Miner, 30 cents; laborer, 25 cents; blacksmith, 35 cents, and carpenter, 40 cents to $1.

The average cost of driving a tunnel 5 by 7 feet in granite at the Suan mine is $4 per foot including labor, tools, and explosives, but exclusive of superintendence. Working day and night Koreans can drive a tunnel in granite at the rate of 50 feet per month.

When practicable it is customary, in some mines, to employ Korean miners by piecework or small contract work. When this is done the results obtained per day from the Korean miner fully equal the average American or Cornish miner. Korean miners seem to possess a special adaptability for placing mining timbers, supports, etc., in position.

The Unsan placer fields have been thoroughly tested by modern scientific methods. These placer areas have, as a whole, been operated for long periods, probably for centuries. However, only about six or seven out of 31 or 32 square miles of placers have been worked over. A careful drill test with American machinery shows that the placers would average only from 5 to 6 cents per cubic yard. Consequently the question of dredging on a large scale has not yet been undertaken.

Cyanide Process Used.—The concentrates at all of five principal camps at Unsan are treated by the cyanide process excepting where the higher grades warrant shipments to the smelting plants at Tacoma, Wash.

The Unsan mines include a water-power plant that will cost, when shortly completed, $300,000. Coal is not available in generating power and when water power is not available cord wood is utilized for power-generating purposes. The necessary fuel and logs for timbering these mines have been had, heretofore, at reasonable prices, practically the cost of cutting and hauling. The timber in remote parts of the Korean Empire has no practical value, but under the reforestation plans of the Japanese protectorate it is proposed to encourage the growing of trees on denuded areas.

The cost of mining and treating a ton of ore at the Unsan mines is estimated at $2.48, divided as follows: Mining, $1.23½; milling, 57½ cents; concentrate (cyanide process), 13 cents; ore transportation, 1½ cents, and general expense,s 47½ cents.

The extensive operations of the Unsan mines may be better understood when it is stated that nearly $250,000 are annually paid to Korean laborers; that the lumber and fuel supply amounts to something over $150,000 a year; that the salaries paid annually to Americans aggregate over $100,000, including home offices in the United States; that in foreign supplies, mostly from America, a quarter of a million dollars are expended in twelve months. In some of these foreign orders from $10,000 to $15,000 are paid for the single item of tallow candles and upward of $30,000 for a temporary supply of dynamite.

The Chiksan Mines.—The Chiksan concession is located in North Choong Chung Province, including the whole of Chiksan magistracy and parts of the adjoining counties, extending, with Chiksan as a center, 20 miles east and west and 14 miles north and south. The concession is about 45 miles south of Seoul and is traversed diagonally by the Seoul-Fusan Railway, which has two stations within the concession limits, Seikwan being the larger and the one nearer to the principal mines, 9½ miles distant.

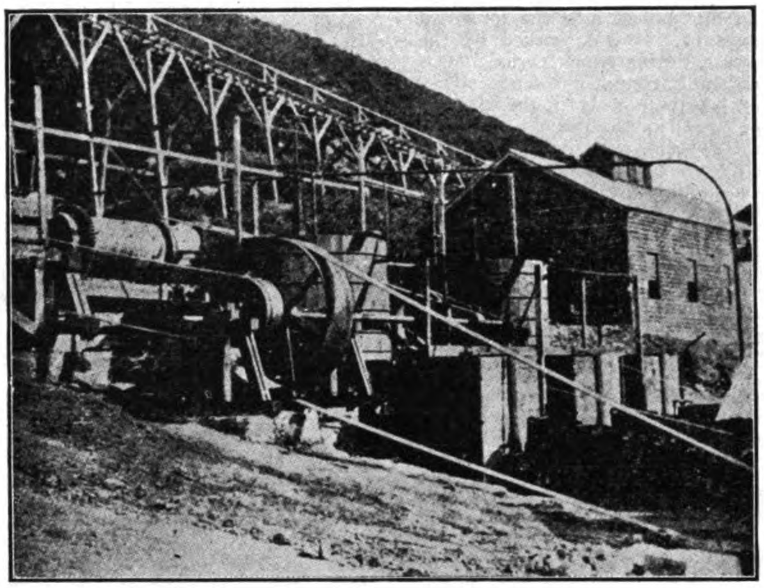
Six miles west of the station is the port of Tsunpo, on an arm of Asan Bay, which was used during the Chino-Japanese war as a military and naval base in operating against Seoul. Tsunpo can be approached by schooners of sufficient tonnage to transport the heaviest machinery, while 9 miles distant there is sufficient water for coasting steamers to navigate without difficulty. The topography of the country between the mines and the bay is almost level, with no large streams, so the cost of building and maintaining roads is reduced to a minimum.

The southern and eastern portions of the concession are comparatively mountainous, though of no great height, the greatest height being about 1,800 feet. From there to the sea the country is almost level, interrupted in places by small hillocks. The country rock is composed entirely of granite and schist, and it is where there is a contact of these two that the best and strongest quartz ledges are found.

Chiksan Ledges.—Throughout the Chiksan concession over 70 quartz outcrops have been located. A large number of these ledges have been worked by Koreans for years. The principal mines being developed by the company are in a lode which follows the range of mountains referred to above. This lode extends over 5 miles, and has Korean workings at intervals over its entire length. At the eastern end of this lode are located the veins upon which the company is at present at work.

The mine on which work was first started has an outcrop plainly defined (since uncovered in the valleys by trenching) for a distance of 4,000 feet, in an easterly direction, and for over 3,000 feet in a westerly direction. The ledge varies in width from 4 to 15 feet, all carrying pay values. The mineralization and pay streak, however, are usually found next to the hanging wall, which is schist with a well-defined cleavage. The foot wall is granite.

The Kapsan Mines—Engineers who have examined the Djin Dong (Kapsan) mine are unanimous in stating that the ore possesses an average value of 10 per cent in copper; that, comparatively, the mine, although only hitherto subjected to crude working methods, has yielded a substantial output for many years past, and that the indications point to the bringing into existence of a somewhat large and permanently profitable mining property, following preliminary development. The engineers agree that labor is cheap, efficient, and abundant, that plenty of timber is available for mining purposes and for fuel; also that the existence of a sufficient supply of water for use in providing power is uncertain.



TUBE MILL AND CYANIDE PLANT, THE ORIENTAL CONSOLIDATED MINING CO., KOREA

The present workings are situated about three-quarters of a mile from the eastern boundary of the limestone. On the top of the hill above the old workings there are small bands of shale embedded with the limestone. These dip about 30 degrees to the southeast, which is more or less the general dip of the limestone in the neighborhood of the ore deposits, though it is so disturbed and has so many dips, from horizontal to vertical, that it would be difficult to give any figures as to the true average dip of the whole of the limestone.

Japanese Geologist's View.—The Japanese government engineer states that the formation of this part of the country belongs to the paleozoic age, and mainly consists of alternate strata of limestone and marl in association with clay, slate, and sandstone. Those rocks undergo the process of the contact-metamorphism by the granite outcropping at a point over three miles northeast of the mine, the limestone being crystallized and producing tremolite. Both the sandstone and the clay slate are also more or less metamorphosed. The strata have a strike from south to north, or from southwest to north-northeast, and construct folds dipping west or east. Basalt takes an opposite course covering the folds, or forms a rock vein running through them.

The deposit is a formation made in connection with the ejection of the basalt, and consists of chalco-pyrite in association with pyrrhotite and arsenopyrite, containing no quartz. As a rule the border with the "country" is well defined, though some impregnation is traceable.

The ore is called "whang chol," or "yelow iron," and the percentage of copper is assayed over 20 per cent in the first-class ore, and 5 per cent or 6 per cent in the second-class, an average of about 10 per cent.

The following is an assay by percentage of what is considered a common kind: Copper 12.07; iron 45.44; sulphur 37.40; silica 0.66. Lead, zinc, or other impurities are totally absent.

History of Kapsan Mine.—The Japanese authorities state that this mine was discovered over 1,000 years ago by a Chinese who worked it without troubling himself to obtain license of the Korean Government. Other authorities report the mine as having been first operated by the natives less than a century ago.

The natives became acquainted with the richness of the deposit and took over the workings to continue it until twenty-four years ago when the ownership passed into the hands of the imperial treasury. It was worked by the latter for two years, during which period it was in a very flourishing condition. Then again the mine became a private concern, the imperial treasury placing there, for the purpose of supervision and tax collection, a commissioner, who was conditionally an official contractor holding the post on paying the imperial treasury a certain annual sum as the revenue from the mine.

In 1904 Americans were granted the right to operate at Kapsan, but this grant, as modified, was not confirmed by the Japanese protectorate until 1908.

Heretofore the native Kapsan miners have solely resorted to manual labor, using a hammer called "machi" and a drill called "chung," until quite recently when they learned from foreigners the use of powder and dynamite.

Before the Russo-Japanese war the greater part of the output was transported to Sin Churng, the port of Puk Chung, thence to be shipped to Wonsan seaport, where it was exported to Osaka by Japanese merchants. A portion went overland to Pyeng Yang or Puk Chon to be made the material for bronze casting.

Native Method of Roasting Copper Ore.—The ore is roasted, smelted direct, without the addition of any flux, in small clay furnaces and metallic copper is produced in two smeltings. Oxidized or especially rich ore is not roasted. The first ore mined was smelted direct, but when sulphides began to be worked difficulty was experienced until the present headman came from the Kang Kyei copper mine and taught the smelters to roast the ore.

The ore is roasted in small circular stalls built of blocks of rock set in clay. These are 6 feet in diameter and 4 feet high. Roasting lasts from sixteen to twenty days up to a month. Nine cents worth of firewood is used per stall to ignite the ore. Two samples of roasted ore were analyzed as follows:

	No. 1.	No. 2.
	Per ct.	*Per ct.*
Sulphur	11.00	14.32
Iron oxide	65.71	62.85
Copper	17.00	13.81

The roasted ore is smelted direct with the addition of some matte and slag from the second smelting. This first smelting takes 24 hours. Blast is provided by a large wooden bellows worked by a crew of six men. A matte is produced, which remains in the furnace, and a slag, which is run off and thrown away. The matte and slag had the following composition:

Matte.	No. 1.	No. 2.
	Per ct.	*Per ct.*
Sulphur	15.70	17.40
Iron	22.30	23.60
Copper	27.82	32.28

Slag.	No. 1.	No. 2.
	Per ct.	*Per ct.*
Silica	22.20	23.60
Iron oxide (FeO)	54.66	52.77
Lime	2.40	1.30
Copper	2.45	2.30

Second smelting; this operation lasts 12 hours. The matte produced in the first smelting, the roasted ore, and furnace scrapings from the final operations are melted to form, (*a*) a slag which runs off and is thrown away, (*b*) a thick, clotted slag, which is scraped out and used again in the first smelting, (*c*) a cake of matte, which remains in the furnace, and (*d*) a circular slab of metallic copper, which is melted into a rectangular bar, and shipped.

Price of Labor and Smelting Process.—The smelters have each his own smeltery, where they work a set of hearths, usually employing 6 blastmen, 1 bellows carpenter, and 1 assistant. In addition to board and lodging the carpenter gets 20 cents per diem, the assistant 17 cents, and the blastmen 13 cents, when they do a full day's work.

The process is similar to what is called in Japan the old-fashioned "regular blast" process. The ores are first roasted in a circular cauldron resembling a stall. The roasted ores are then treated in a "preliminary hearth," filled with charcoal, by a hand bellows. The mattes formed in this way are removed to a "regular hearth," where they receive a finishing treatment, being fused with charcoal and firewood. The product of this treatment is the coarse copper. No other agents are used in the preliminary and regular hearths for the fusing, but, as is common in a process of this kind, the uncleaned slags formed in the regular hearth are again put into the preliminary hearth for further treatment.

As there are so many uncertainties, chiefly depending upon the scale of operations, the process of smelting employed, and what arrangements can be made for transport, and also what amount of stores have to be brought in, only rough approximations can be given at this stage. The mining will be cheap, and also ore transport, providing smelters are erected close to the mine. The estimated total cost of smelting is $7.50 per ton. Transport to the coast can be arranged for at $30 per ton, which includes both carrying copper to the coast and bringing back stores.

GASOLINE ROAD ROLLERS

The experiments made with the Austin Road Roller in the Philippines to demonstrate the adaptability of gasoline as a motive power have been very successful so far as can be learned, and it is believed that the up-keep is so reasonable, especially in sections where the cost of transportation of coal is an important item, that these rollers will be in great demand. The report of the district engineer of the province of Rizal to the Director of Public Works indicates that its use there has proven very economical and satisfactory. In concluding he says:

"The following report conforms fairly well to the cost of operation as submitted by Mr. Helvie (representative of the manufacturer), and it is believed to be entirely satisfactory. However, as yet I have had no opportunity to see the roller at work on a grade and the question of securing thoroughly efficient engineers will always be a practicable problem well worth considering in the use of gasoline machines in the Philippines. Cost of operation of Austin 10 ton roller during 12 days running, 8 hours a day:

Gasoline, 96 gallons @ ₱0.66 per gallon	₱ 68.36
Gas engine oil, 2 gals. @ 1.38 " "	" 2.76
1 tin white grease @ 2.81 " tin	" 2.81
6 sheets emery cloth @ .015 " sheet	" .09
4 lbs. waste @ .17 " lb.	" .68
1 Engineer, 12 days @ 2.50 " day	" 30.00
1 Assistant 12 " @ .60 " "	" 7.20
Transportation of gasoline, etc., probably	" 4.00
Total	₱110.90
Or for day of 8 hours	9.24

Following is the report made by Andres Custodio, engineer in charge of the Austin Roller in Laguna province, covering 15 days work and showing the amount of gasoline consumed.

Gasoline, 3 days, one can (10 gallons) each	30 Gals.
" 5 " 8 gallons "	40 "
" 7 " one can (10 gallons) "	70 "
15	140 Gals.

The following is the report of the amount of gasoline used by the roller in the city of Manila covering a period of 27 days:

Gasoline, 3 days, one can (10 gallons) each	30 Gals.
" 4 " " " (10 ") "	40 "
" 15 " " " (10 ") "	150 "
" 5 " " " (10 ") "	50 "
27 " " " (10 ") "	270 Gals.

Including all costs of operation these reports demonstrate that in Laguna the cost per day of 8 hours operation, including labor, etc., was ₱7.87; in Rizal ₱9.24 and in the city of Manila ₱9.40.

AMERICO-JAPANESE ELECTRIC ENGINEERING ENTERPRISE

There are at present, says the *Japan Times*, only a few establishments of electric engineering industry in Japan. The most important of these are the Shibaura Engineering Works owned by the Mitsui family and the Tokyo Electricity Company which is a joint enterprise of the American General Electric Company and a body of Japanese. The former has a capital of 1,000,000 yen and the latter 700,000 yen paid up, both rather limited capital for any enterprise of the kind. So that these companies have been confined to a very limited business though they are doing good business. Recently these companies are concerned in the negotiation of amalgamation. As soon as the proposal brought by the Japanese partners be consented to by the General Electric Co. the concerns will call general meetings of shareholders in order to carry the amalgamation into effect. The talk of amalgamation is alleged to have originated in the meeting between the President of the General Electric and Mr. Masuda of the Mitsui when the latter visited America in the year before last. Toward the end of last year the general manager of the American Company came to this country on business and personally inspected the Shibaura Engineering Works and Tokyo Electricity Company. The manager was struck with profound admiration at the skill and ability of Japanese engineers which inspired in him the necessity of going to business jointly with Japanese. Thereon the manager advised by telegram the board of the company to advance the negotiation in question dwelling on the promising condition of the enterprise. This brought to quick conclusion the negotiation among the concerned, which has been nearly settled. On the return to America of the manager who departed for home last month the question will be once more submitted to the board of directors when the contract is to be formally concluded. According to the plan the new company will have a capital of 4,000,000 yen 51 per cent. of which sum is to be held by the General Electric Co. in exchange for the entire patent possessed by the company. In the event of successful agreement all kinds of electric apparatus and machinery for which hitherto we paid no small sum of freightage and customs duty will be made in Japan and obtainable at much cheaper price than at present. The new company will also supply China, Korea and the Philippines.

TRANSPACIFIC SHIPPING*

Situated at the mouth of the Yangtze River and at the door of a great fertile territory without other direct outlet to the world of foreign commerce, Shanghai has become the greatest receiving and distributing center in the Celestial Empire for the commodities that are each year carried from China across the Pacific Ocean and vice versa. The docks here are busy with ocean-going steamers, while vessels leave daily for the coast and river ports open to foreign trade. Junks, lorchas, and other craft of infinite variety ply to the native coast towns, and smaller boats, by way of a labyrinth of rivers, creeks, and canals, find their way to and from the thousand and one cities and villages that dot the vast expanse of country whose inhabitants draw their supplies of foreign goods from Shanghai's warehouses.

Steamship Lines in Operation.—There are eight steamship lines plying between this port and the Pacific coast of America.

The Pacific Mail Steamship Company operates six vessels, American owned, carrying passengers and freight, under the American flag, to San Francisco, as follows: Asia, China, Korea, Manchuria, Mongolia, Siberia

The Great Northern Steamship Company operates one vessel, the Minnesota, which is American owned, and carries passengers and freight, under the American flag, to Seattle.

The Standard Oil Company operates seven vessels, American owned, carrying freight only, under the British flag, to San Francisco, as follows: Ashtabula, Calcutta, Dakota, Seminole, Tonawanda, Tuscarora, Winnebago.

The Robert Dollar Company operates two vessels, American owned, carrying freight only, under the British flag, to San Francisco, as follows: M. S. Dollar, Hazel Dollar.

The Nippon Yusen Kaisha operates six vessels, Japanese owned, carrying passengers and freight under the Japanese flag, to Seattle, as follows: Aki Maru, Iyo Maru, Kaga Maru, Shinano Maru, Tango Maru, Tosa Maru.

The Toyo Kisen Kaisha operates four vessels, Japanese owned, carrying passengers and freight, under the Japanese flag, to San Francisco, as follows: America Maru, Hongkong Maru, Nippon Maru, Tenyo Maru. A fifth ship, the Chiyo Maru, has recently been launched for this company in Nagasaki, and will shortly take her place in the sailing list.

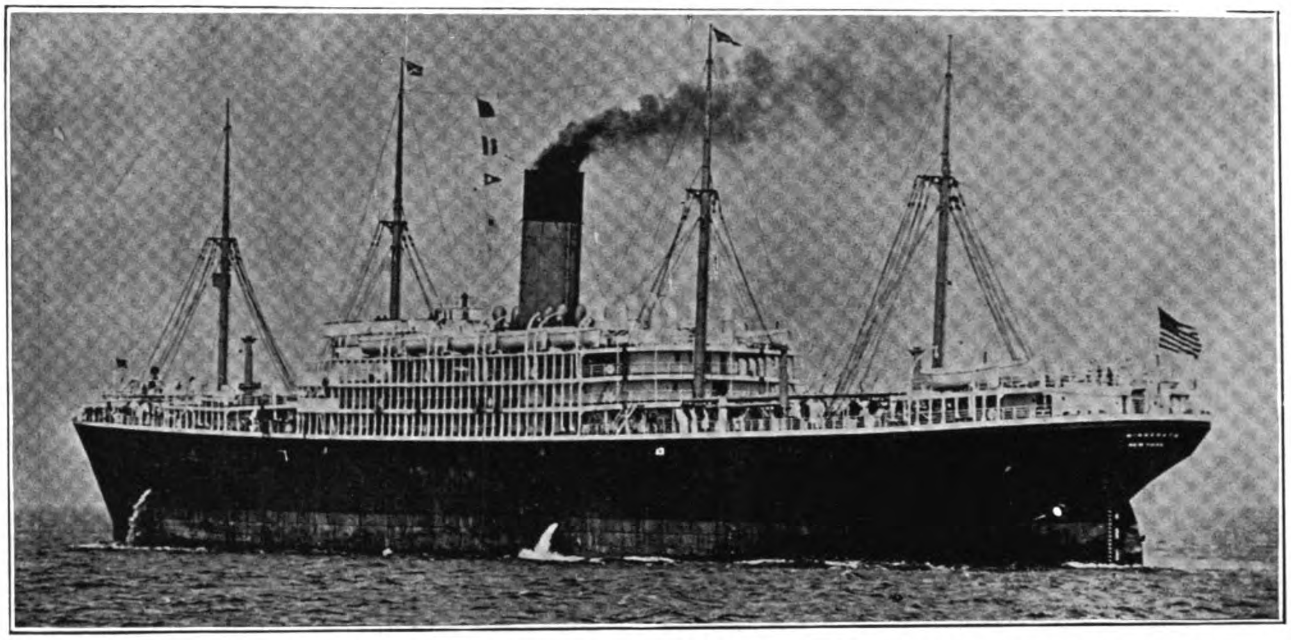
La Compagnie des Chargeurs Réunis operates nine vessels, French owned, under the French flag, to San Francisco, Portland, and Seattle, as follows: Amiral Duperré, Amiral Exelmans, Amiral Fourichon, Amiral Magon, Amiral Olry, Ceylan, Malte, Ouessant, Corse. These ships carry both freight and passengers but make no voyages from San Francisco, etc., to Shanghai. They sail from Havre, in France, and voyage around the world, calling here on the outward trip.

The Canadian Pacific Railway Company operates six vessels, British owned, under the British flag, to Vancouver, B. C., as follows: Empress of China, Empress of India, Empress of Japan, Monteagle, Glenfarg, Lennox. The two latter carry only freight

The Passenger Service.—There are no statistics available as to the number of passengers and value of fares carried by the vessels crossing the Pacific, but it is estimated that they transport about 15,000 people to and from this port annually, which, at an average fare of say $175 United States currency per capita, would represent an outlay of $2,625,000. The passenger accommodations on most of the ships are rated first-class, European steerage, and Asiatic steerage. About four years ago the Canadian Pacific Railway Company inaugurated an intermediate passenger service. Only one class of passengers was carried, and a moderate fare of $125 was charged from Shanghai to Vancouver. This service became popular, and is still maintained by the Monteagle. During the past summer the Pacific Mail Steamship Company adopted the same course, and to-day passengers can travel comfortably to San Francisco for $125 in either the Asia or China.

Second-class accommodations are provided on the Minnesota. The Tenyo Maru, of the Toyo Kisen Kaisha, is also comfortably fitted out for second-class travelers, and I am informed the Chiyo Maru will be similarly equipped. Most people prefer traveling by the intermediate steamers rather than second class.

Value of Freight Cargoes.—The value of exports leaving this port for the United States during 1907 was $15,247,816. It is difficult to say what portion of this was carried by the trans-Pacific fleet, as no statistics are kept showing how much travels via the Pacific and how much via the Suez Canal, but there were during 1907 about 136 voyages across the Pacific, as compared with 30 through the canal



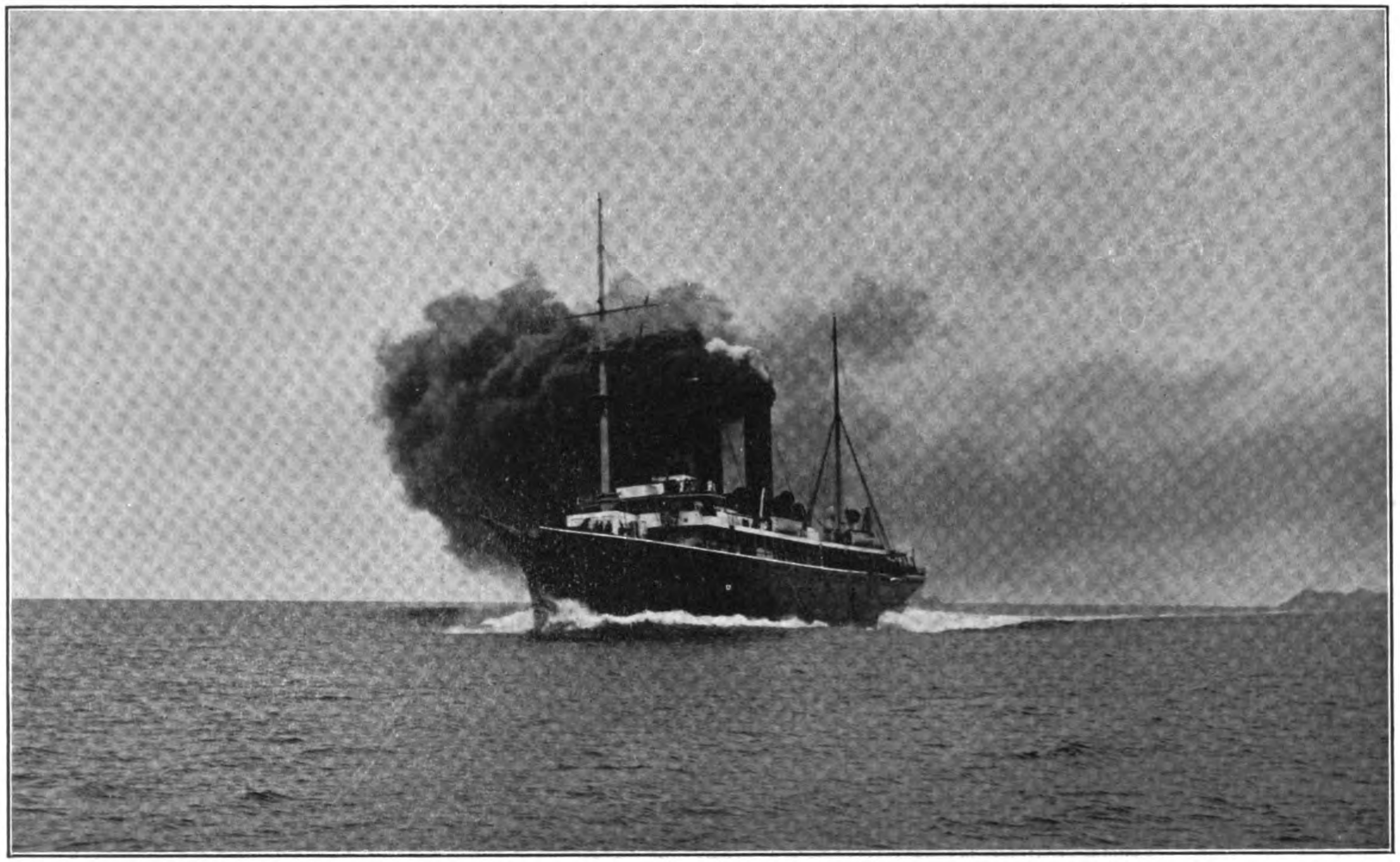
S.S. MINNESOTA, 28,000 TONS, THE LARGEST VESSEL IN PACIFIC WATERS, OWNED BY THE GREAT NORTHERN STEAMSHIP CO.

There are also no statistics showing the value of imports at this port from the United States, but it may be approximated in this way. The total value of imports from all countries into China was about $339,000,000, and of this amount about $152,000,000, or 44.8 per cent, paid duty at Shanghai. The total of imports from the United States into China in 1907 was $30,000,000. The proportion of this cargo that arrived at Shanghai may be taken as about the same as that of the whole of China, but of this I can give no assurance.

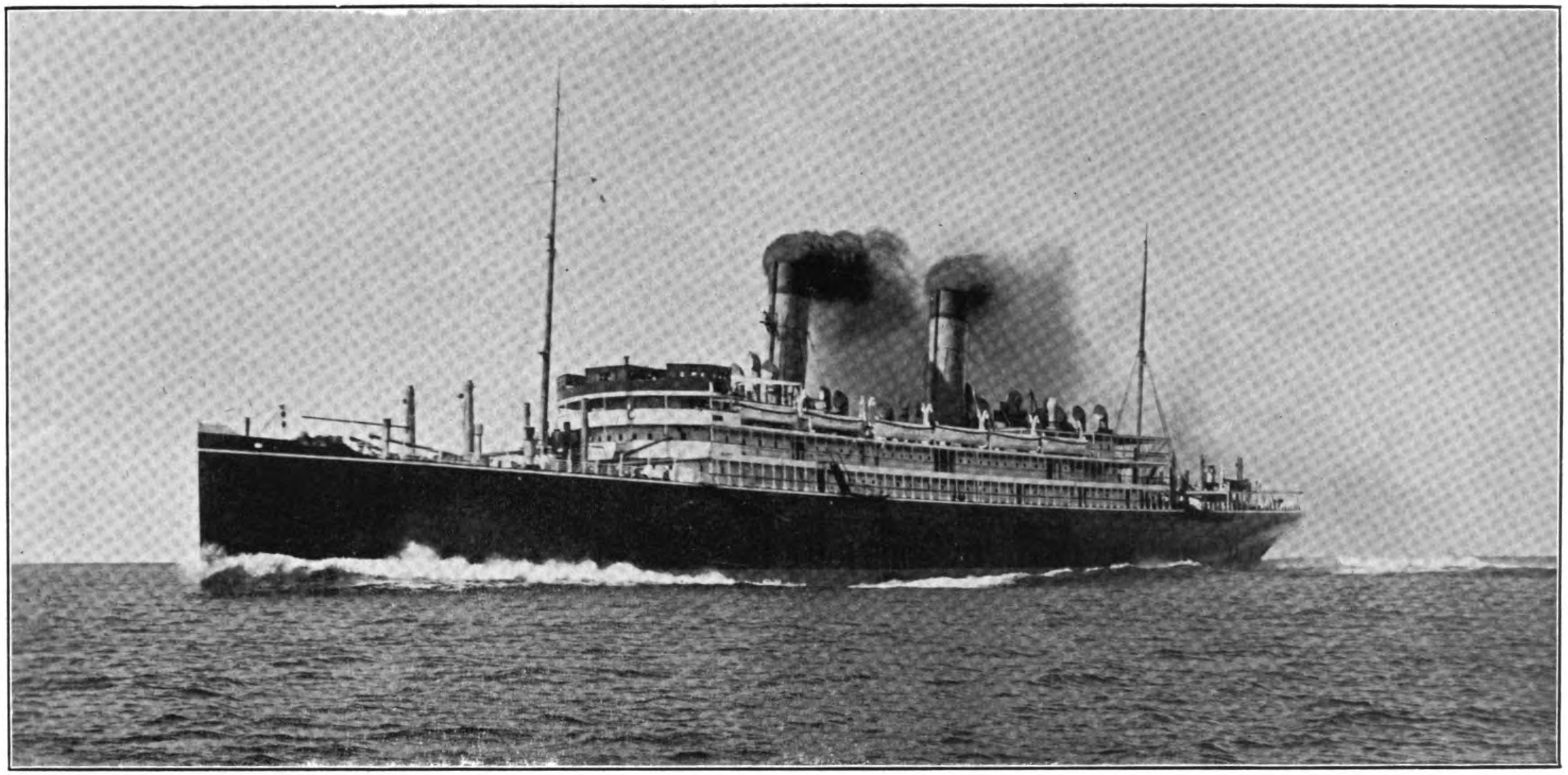
The character of the cargo carried by these ships is very general, the principal products from China being silk, tea, straw braid, wool, skins, hides, albumen, pig iron, antimony, bristles, camphor, feathers, furs, rush hats, straw hats, household effects, musk, gall nuts, nut oil, wood oil, pongees, beeswax, Chinese books, Chinese calendars, cantharides, china ware, curios, egg yolk, human hair, animal hair, Chinese ink, jade, jute, rhubarb, silk clothing, silk waste, soapstone ornaments, skin trunks, vegetable wax, etc.

The principal articles imported from the United States are kerosene oil, lubricating oil, gasolene, flour, duck, sheetings and other piece goods, machinery and fittings, provisions and foodstuffs of all kinds, tobacco, cigarettes, electrical materials, hardware, lamps, leather, sewing machines, medicines, optical goods, paper, photographic materials, safes, stationery, stoves, sugar, lumber, beer, wine, gramophones, locomotives, etc.

*Vice-Consul-General W. Roderick Dorsey, of Shanghai, in *Consular and Trade Reports.*



IMPERIAL JAPANESE VOLUNTEER FLEET STEAMER "SAKURA-MARU."—Built and engined by Mitsu Bishi Dockyard and Engine Works, Nagasaki, October 1908, to the requirements of the Imp. Japanese Government Rules.—Length, 335 feet 0"; Breadth, 43 feet 0"; Depth, 31 feet 6"; Gross tonnage, 3200 tons; Displacement, 3880 tons; Engines, Parsons' Three Shaft Steam Turbines; Boilers, Miyabara's Water Tube Boilers (6); I. H. P., 8500; Speed, 21 knots.; Shipowners, Imperial Japanese Marine Association; Armaments, 2 6-in. guns, 6 12-pounders; Wireless Telegraph on fore mast; 2 search lights, each 20". (This photo was taken on her full speed trials which took place on 26th September, 1908.)



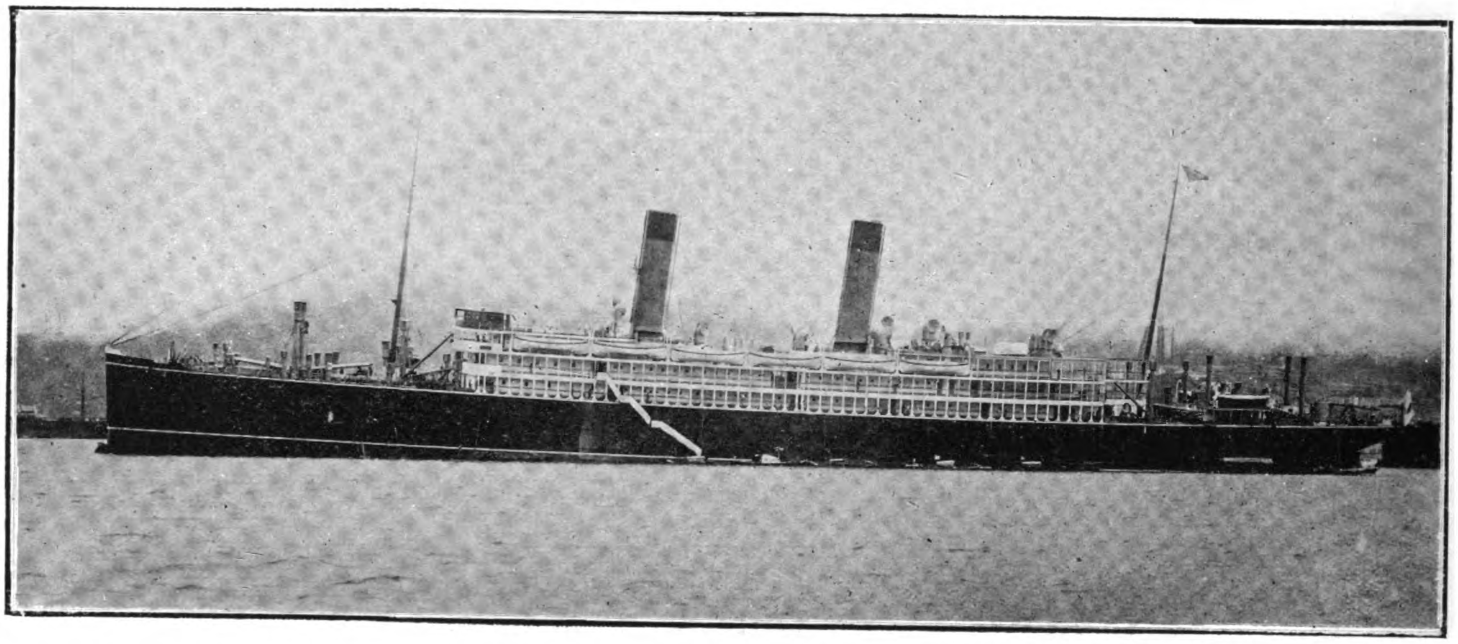
TRIPLE SCREW TURBINE STEAMER "CHIYO-MARU."—Built and engined by Mitsu Bishi Dockyard and Engine Works, Nagasaki, November 1908, to the requirements of the Imp. Japanese Government Rules and Lloyd 100 A-1.—Length, 550 feet 0"; Breadth, 63 feet 0"; Depth, 38 feet 6"; Gross tonnage, 13500 tons; Displacement, 18725 tons; Engines, Parsons' Three Shaft Steam Turbines; Indicated horse power, 16850 H. P.; Speed, 21 knots; Shipowners, Messrs. Toyo Kisen Kaisha, Tokio.—(This photo was taken on her full speed trials which took place on 13th Oct. 1908.)

TRANSPACIFIC SHIPPING

Continued from page 347.

Aid from Subsidies and Similar Sources—None of the vessels operated under the American flag receive assistance in the way of subsidies. Those of the Pacific Mail and Great Northern companies carry United States mails, and are paid by weight. The mails are not held, however, for these steamers, but are sent forward on the same terms, on convenient dates, by moderate tonnage, with frequent regular sailings, have proved the most successful, and will be the most practical for some years to come. With the opening of the Isthmian Canal, vessels of proper capacity plying through that waterway from the Atlantic coast ports should divert from the Suez the great bulk of cargo traversing that route to-day, from the United States to Shanghai and other Oriental ports.

The American Flag in Chinese Commerce.—The American flag in the carrying of commerce plays a small part in the great trade of this



THE S.S. TENYO MARU OF THE TOYO KISEN KAISHA FLEET, SISTER TO THE CHIYO MARU.—TONNAGE 13,500 TONS.—BUILT BY THE MITSUI BISHI DOCKYARDS

Empire, and the number of vessels flying it seems to decrease each year. In five years the number of American vessels entered and cleared at Chinese ports has dropped from 1,295 to 549.

The glory of the old sailing-ship days has departed. In 1907 not one American vessel entered the Whangpoo under sail. Yet there are many who remember seeing a hundred and more sailing ships flying the flag riding at anchor in the river at one time. It is true that steam vessels have replaced sailing ships of all nationalities in this trade, but the increase of American steam tonnage has not kept pace with either the increase of American trade, the world importance of the American flag, or the tonnage of other countries.

In 1907 the number of vessels and tonnage entered and cleared under various flags was as follows:

	No. of vessels.	*Tonnage.*
Japanese	29,296	15,598,213
German	5,864	6,639,767
Norwegian	1,110	1,067,110
American	549	1,045,899
Russian	147	264,042
Austrian	50	197,564
British	27,495	33,316,618
French	5,072	4,712,188
Portuguese	856	108,712
Holland	171	298,058
Danish	68	109,795
Korean	47	36,865

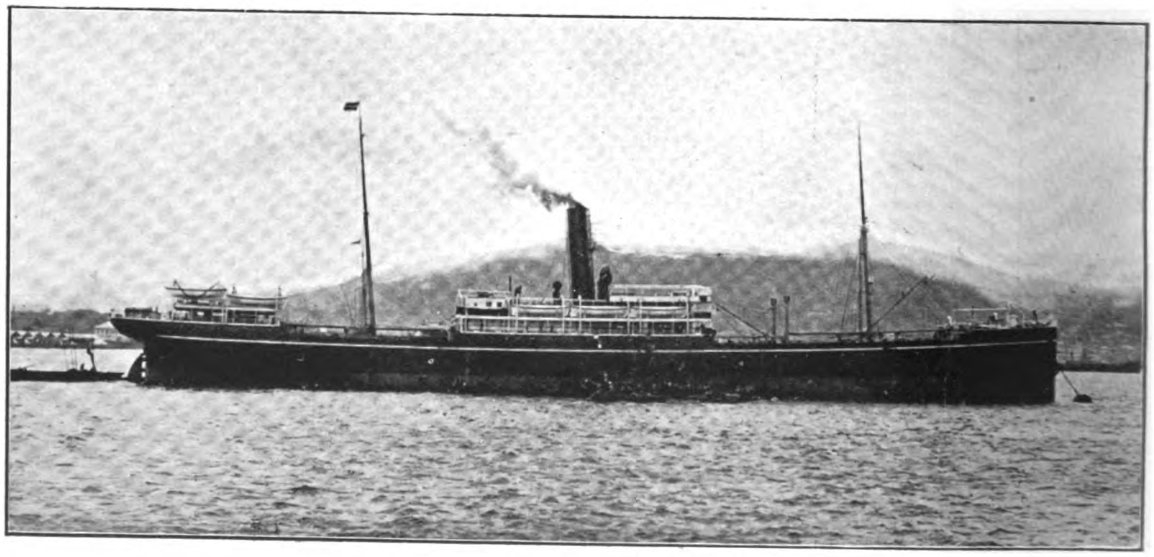
the ships of the Nippon Yusen Kaisha, the Toyo Kisen Kaisha, and the Canadian Pacific Railway Company.

Both the Japanese lines receive subsidies from the Government. It is the policy of Japan to assist her shipping industry, sending bottoms in every direction to carry the cargoes of the great producing countries, and bring to the coffers of her merchants the wealth that is earned each year through this medium, independently of her own resources. In 1907 the Nippon Yusen Kaisha received in subsidies for all its lines the sum of about $2,610,000, while the business receipts were $11,575,000, with a net profit of $1,219,000.

La Compagnie des Chargeurs Réunis receives no fixed subvention from the French Government, but benefits under the acts of April 7, 1902, and of April 19, 1906. I have not the text of these laws, but am informed that the methods by which ships of this class may receive such benefits are numerous.

The lines under the British flag receive no subsidies, but the ships of the Canadian Pacific Railway Company benefit in that they have a contract with the British Government to carry the mails at a fixed rate. The amount received in a year is considerable, and, I am told, pays for the coal required to operate the vessels.

Ships of Moderate Tonnage Most Practical.—Tonnage dues at this port are charged at the rate of 4 mace, or about 22 cents United States currency, per registered ton, so that a ship of the size of the Minnesota would pay about $3,000 each voyage in addition to pilots' dues, which are levied on the basis of the draft of the vessel plus an added charge for each registered ton over and above 1,500 net register tons. These and other charges incidental to the call of a vessel at a port impose a tax on such vessels, so that their visits net the smallest margin of profit, if any, to the owners. Ships of



NIPPON YUSEN KAISHA'S STEAMER, HITACHI MARU, BUILT BY THE MITSUI BISHI DOCKYARDS. GROSS TONNAGE, 6,715 TONS

On the Yangtze River, that great waterway up and down which many thousands of tons of foreign cargoes pass annually to supply the wants of the millions of consumers in that great valley, only one commercial vessel flying the American flag is to be seen, and that a ship of 461 tons capacity owned and operated by the Standard Oil Company for transporting cargo to its stations on the river, which only four times during 1907 carried the flag as far inland as Hankow.

TAHITI.—*New Connection from America via Papeete to Australasia.*—Consul Julius D. Dreher, in the following report dated at Tahiti, December 7, describes additional facilities for the shipment of American merchandise to Australasia:

There has been no direct passenger steamship line between San Francisco and New Zealand and Australian ports since the Oceanic Steamship Company, of San Francisco, withdrew its ships from that service in May, 1907, and as the schedule of the Mariposa of that company provides for only one close connection a year at Tahiti with the ship of the Union Line from Auckland, passengers who wished to go from San Francisco to New Zealand have been put to no little inconvenience and expense. For the benefit of such travelers, as well as to carry freight, the Union Line has arranged to begin in January, 1909, a service between Wellington, New Zealand, and Tahiti, making a round trip every thirty-six days and connecting at Tahiti for San Francisco and at Wellington for Sydney. The first ship from Wellington is due to arrive at Tahiti on January 12, and the time from that city to San Francisco will be twenty-two days. Auckland papers report that this new line is to receive from the Dominion of New Zealand a subsidy of £7,000 ($34,065) for the first year.

The Union Line will continue its service between Auckland and Tahiti, making the usual round trip once every twenty-eight days.

At San Francisco tickets one way or for a round trip will be sold to Tahiti, and via Tahiti to Wellington, Auckland, and other places in New Zealand, and to Sydney, Melbourne, and other Australian ports.

It is expected that the connection made at Tahiti will promote the shipment of freight by this new line also. As the ships from San Francisco and Wellington will be in the harbor of Papeete, Tahiti, at the same time, freight can be expeditiously transferred from one to the other while the ships lie alongside at the wharf. On December 4, 5,000 boxes of oranges were thus transferred from the Mariposa to the Auckland ship in eight hours.

The distance from San Francisco to Wellington, via Tahiti, is about 6,050 miles, and via Honolulu, 6,263 miles; from San Francisco to Auckland, via Tahiti, is 5,880 miles, and via Honolulu, 5,950 miles.

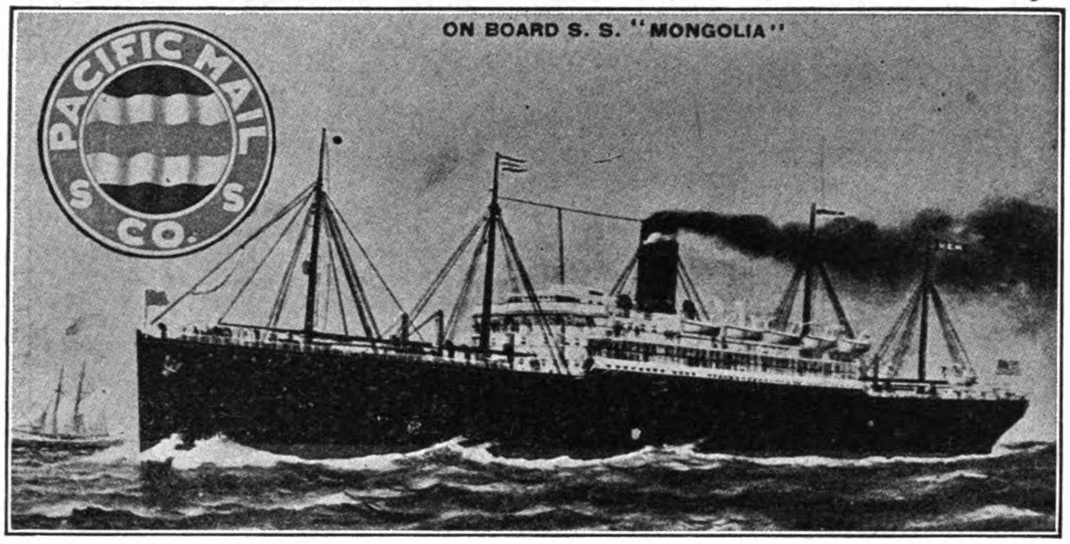
*TRANSPORTATION A PRIME FACTOR IN ORIENTAL TRADE

The Oriental races have extremely limited individual purchasing power. Their wants, while a maximum in volume, must be supplied at a minimum in cost. The profit to the trader comes, not from a single order, but from a multiplication of transactions. Hence, in developing this trade, the cost of production must be restricted to the cost levels of competing countries and transportation effected as cheaply and as expeditiously.

In production concessions have been made by all interested, even to the extent that in certain lines of manufacture lower wages are paid workmen making goods for export to the Orient than when manufacturing similar goods for the home markets. The lower scale of wages prevailing in Europe necessitates this, and the practice is approved by the labor unions. Experience shows no doubt of America's ability to produce the Oriental requirements at a cost at least competitive with other suppliers.

The question of transportation is involved and presents conflicting problems. In considering this feature it must be remembered that, in seeking Oriental trade, American merchants compete not only among themselves but with the merchants of the principal supplying nations of Europe. The Oriental customer is unconcerned as to the exact origin of the goods he purchases, or the particular route by which they happen to travel in reaching him; the vital elements are that he shall have delivered what he wants when he wants it, at the lowest possible price. Whether the goods come from Middlesboro or Manchester in England; from Pittsburg, Pa., or Pacolet, S. C.; or from Hamburg or Antwerp; whether they come via Suez or by the Pacific, in an express steamer or a cargo boat, are alike, to him, comparatively unimportant details, so long as the vital elements are observed.

The "laid down" cost in the Orient is the item of greatest interest, and consequently every factor that enters into its construction may each be controlling. The transportation charge forms a varying, though always important, percentage of the "laid down" cost of any given article, and obviously it is essential that American merchants must, in this respect as in all others, be on an equality with their foreign trade rivals, both as to charges and service.



S. S. MONGOLIA, PACIFIC MAIL, 28,000 TONS.

What is the situation?

Paradoxically America is nearest to, and at the same time farthest from, the Oriental markets. For that market her producing area, apart from flour, lumber and minerals, may be fairly described as the territory lying between the Mississippi River and the Atlantic Ocean. The distance thence to Shanghai, for instance, is, via Pacific, about 8,000 miles, and via New York and Suez about 13,000 miles; while from London, Liverpool, Hamburg and Antwerp it is about 10,500 miles; and from Marseilles and Genoa, about 9,600 miles. These European ports are served by fast steamers plying regularly to and from the principal Oriental countries. Many of the lines are partially supported by governmental aid in the form of subsidies of one kind or another, and as their transport is entirely by sea, they afford the advantage of low ocean rates. Consequently the chief supplying nations of Europe procure regular, prompt and cheap service to the Far East.

American merchants, on the other hand, so far as the long route via Suez is concerned, depend entirely upon the operations of a miscellaneous collection of slow-steaming foreign cargo boats, which come and go irregularly. These vessels rarely sail on the dates first announced, usually delaying their departure in the hope of picking up complete cargoes, or to make repairs before venturing on their journey. While they cannot wholly equalize the rates prevailing from Europe, owing to the greater cost in America of getting goods to the seacoast, they partially do so; but the service is uncertain, the steamers slow and the voyage some 3,000 miles longer. So that, so far as shipment via Suez is concerned, the suppliers of Europe enjoy a distinct advantage over their American trade rivals.

Years ago efforts were made to overcome, via the short Pacific route, this inequality in transportation facilities. A chief difficulty was that, although shorter in distance, the Pacific route involved carriage by railroad across the American continent, which is infinitely more costly from America's producing area for export goods than rail transport to New York. By wise co-operation between the transcontinental railroads and interested merchants, regular sailings with fixed dates of departure have for some time been provided from the chief ports on our Pacific coast to the various Oriental ports, and through rates established substantially competitive with those prevailing from both Europe and New York, via Suez Canal.

The companies that supplied the steamship service were guaranteed the carriage of all traffic secured in consideration of their furnishing frequent opportunities for transhipment across the Pacific, the steamers to sail regularly, whether or not they had complete cargoes. This result was attained by a private division of the through rates, available only to steamship companies providing such service. The through rates were arrived at by computing the total carrying charges, via Suez, from point of origin to destination, and adding an amount sufficient to represent the saving in interest and insurance fees resulting from the quicker deliveries effected via Pacific. This method necessitated the railroads accepting less revenue for transporting export freight to their Pacific coast terminals than they received for similar domestic business.

The railroads proceeded on the broad policy that, while the traffic in itself could not by any stretch of the imagination be called profitable, it nevertheless did not, in total, show actual loss, as it assisted them in collateral ways, and besides it afforded traders and manufacturers an outlet for considerable merchandise which they could not otherwise dispose of. It has been an important aid in the expansion of American export trade and has added to the general welfare of the country. The railroads

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*Written for the *Exporters' Review* by Mr. H. P. Durdan, Agent at New York, since 1904, for the Great Northern Steamship Company, the Nippon Yusen Kaisha and other lines operating from Seattle and Tacoma to the Far East.

wisely believe that whatever advances the general business interests of the country correspondingly helps them.

The Pacific is our natural route to the Far East, inasmuch as it is the shortest, and the maintenance of this service has meant much in upbuilding and holding America's trade there.

In August, 1906, acting on a hint from the newly installed Interstate Commerce Commission, that it disapproved of any great disparity between rates for the carriage of export and domestic traffic between given points, the transcontinental railroads readjusted their schedules and withdrew the rates where such differences were most marked. The changes made were viewed with apprehension by the merchants, and much important trade, therefore supplied from America, was lost to foreign rivals, especially to Belgium, as a direct result of this action.

Recently the Interstate Commerce Commission has ruled that railroads must publish the proportionate rates they receive from interior points to the seacoast on export traffic, and, moreover, that such rates must be available to all steamships. The transcontinental railroads endeavored, by petition to the commissioners, to have the order modified, at least in its application to Oriental trade, but the commission refused to comply, and the ruling became operative on November 1. As a result the railroads have entirely withdrawn their through export rates, and hereafter the domestic rates to the Pacific coast cities will be exacted on all traffic. With the ocean charges added to these figures, an increase in through rates of from 25 to 200 per cent. will result, which, in respect to many articles of export, will practically end America's Far Eastern trade. At the best, further development and expansion will be hampered and restricted.

One of the largest exporters in America says "this action means the inevitable destruction of the Pacific trade if the ruling of the Interstate Commerce Commission is carried to its ultimate effect," and by all it is conceded to be the severest blow ever given American trade prospects in the Orient. As an illustration of the deterrent effect of the new conditions, it is a fact that, since the railroads have announced their policy, several manufacturers are seriously considering the necessity of supplying their Oriental trade from plants they own, or can secure, in England and Canada, which outcome would, obviously, entail hardship on the localities where such goods have hitherto been produced.

Such an outcome would be directly attributable to the practical withdrawal of the Pacific route. In the cases involved the necessity of replenishing stocks held in the Orient frequently and regularly, at low freight cost, is of prime importance. America now affords no such opportunities.

Already an organization of interested merchants has been formed in an endeavor to bring about some adjustment which will again open our natural route to the Far East.

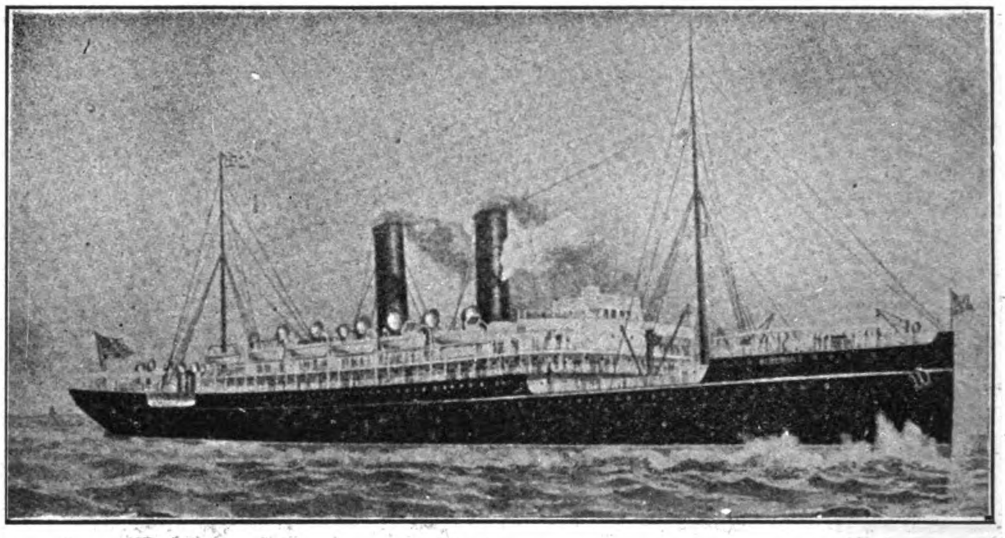
It is understood that the action of the railroads in withdrawing their through export rates is due to their belief that the differences between their charges on domestic and export traffic, for similar service, would, if published, invite complaint from shippers of domestic freight and their apprehension respecting the final adjustment of such complaints. The railroads know, besides, that if their rates for export freight are not restricted to steamship lines giving regular service, as heretofore, but are available to every "tramp" that happens into their ports, it will be impossible to guarantee regular and dependable sailings. No steamship line will guarantee sailings on fixed dates, whether cargoes are complete or not, without some compensating advantage.

The Interstate Commerce Commissioners have said that the method they have prescribed is the only way in which they can control rates from the interior to the seaboard, as the law requires them to do. Without questioning the justice of the commissioners' view as to their duty, it may fairly be asked, first, if the commission thoroughly understands the important trade questions involved; and, second, if the ruling they have made represents, after all, the *only* way in which such rail rates can be supervised.

On the first proposition it is a matter of record that the commission consulted no merchants of importance in the Oriental trade before announcing its mandate, and therefore probably was unaware of the far-reaching and disastrous effect on trade which its order would produce.

Regarding the second proposition, it is the intention of the Interstate Commerce Act to ensure reasonableness in transportation charges, and to prevent discrimination between either individuals or localities.

rule that is upbuilding in one section of the country may be suicidal in another. It is a fact well known to those interested, that it is impossible to ensure regular sailings across the Pacific Ocean, involving, as it does, great expense for the long steaming and for port charges, unless the steamship owners are offered inducements which will protect their earnings from the constant raids of "tramps." Regular service is as necessary as competitive rates. It is pertinent to ask what discrimination or injustice would result by a formal announcement that reduced export rail rates would be available only to steamship lines furnishing regular service, with sailings, say, fortnightly or monthly. Such notice might be published as part of the public schedule of rates. With such conditions prescribed, and open to all, wherein appears discrimination?



S.S. SIBERIA, 18,000 TONS, PACIFIC MAIL.—TRANSPACIFIC RECORD 10 DAYS 10 HRS. (YOKOHAMA-SAN FRANCISCO)

It is certain that if the railroad rates to Pacific coast cities were forced down to the comparative level of the amounts the roads have found it necessary to accept on Oriental freight, every transcontinental railroad would be bankrupt. It is equally certain that if the railroad accepts a less amount for transporting to, say Seattle, a shipment destined to Shanghai, than it charges for like service on similar shipment for domestic consumption, no injustice has been done to any person interested in such domestic cargo; the conditions surrounding the trade involved bear no relation to each other. The practice of giving lower prices for similar goods sold at home and abroad is universal in America, and the expansion of her foreign trade is recognized as an essential element in the country's development.

As the cost of transportation is of equal importance in foreign trade as the price of the goods, why should not the same principle be applied? It has been the practice of the English and government-owned German railroads, where much lower rates are given from interior producing centers to the seaboard for export than for purely domestic traffic.

If this principle is admitted why could not the Interstate Commerce Commission announce the fact? Such action would doubtless remove the chief fear of the railroads and enable them to continue their co-operation as before. The commission would be entirely justified in thus handling this question, as the law requires that railroad charges shall of necessity be alike to all persons only where traffic is transported "under substantially similar circumstances and conditions."

The commission's ruling that export rail rates must be the same for all, irrespective of what ocean carrier transports the goods, is believed to be too general. There is no universal road to the regulation of transportation. A

Such action would remove the railroads' second objection.

The railroads should also be formally authorized to guarantee rates for long periods in advance.

This is an absolute necessity of Oriental trade, as, in many articles of export, orders are taken for deliveries twelve and eighteen months head, and no merchant can afford to leave to chance any item in his "laid down" cost. He should be guaranteed.

This and other necessities of transportation which may arise should be carefully studied by all having jurisdiction, to the end that no impediment shall restrict the growth of our Oriental trade.

While the present conditions are disastrous to American trade, it is believed they may be easily overcome when the Interstate Commerce Commission fully recognizes the actual trade conditions existing and the transportation problems involved. For, after all, the Interstate Commerce Law was framed to regulate, not to destroy, commerce.

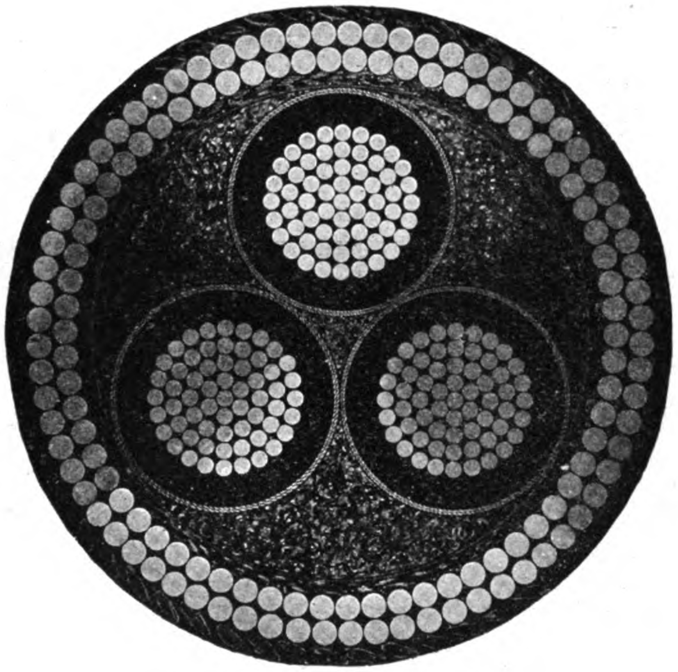
The United States Government in all its departments—executive, judicial and administrative—has ever been an aid in promoting American influence in the Far East. Though to broaden our opportunities we possess the Philippines, or our fleet sails round the world, or we return China her indemnity, or Mr. Taft tours through the Orient; and even though our consuls scour the Celestial Empire in search of new avenues for American trade, it profiteth us nothing if we cannot *reach* the Eastern markets on an equality with the trader of other nations.

The closed door to the Orient should be opened.

A LARGE COLLIERY CABLE

We illustrate herewith another large colliery cable recently manufactured by Messrs. W. T. Henley's Telegraph Works Co., Ltd., of Blomfield Street, London, E. C., who are specialists in the manufacture of mining cables.

DRUM USED FOR DELIVERY OF ONE ORDER OF HENLEY'S CABLE



HENLEY'S THREE CORE TYPE CABLE

The cable is of the three-core type, or transmitting three-phase current down the shaft of a mine at a pressure of 500 volts, each conductor being of 266 sq. mm. section, composed of 61 tinned copper wires each 2.337 mm. in diameter, insulated with vulcanized bitumen to a diameter of 29.66 mm., making a total thickness of insulation between cores of 8.63 mm. and between any one conductor and earth of 4.31 mm., covered spirally with two lappings of taping, the three cores then laid round a centre with wormings, again taped, heavily braided and compounded, armored with two layers of galvanized iron wires, each wire 3.25 mm. in diameter, served over all with tarred jute yarn and waterproof compounded to a diameter of 89 mm. The breaking strain of the completed cable being 50 tons.

The cable was manufactured and delivered in one length of 347½ metres for suspension down one of the shafts of The Dechmont Colliery owned by Messrs. A. Russell & Co., Ltd., to the order of Messrs. G. Harland Bowden & Co. of Manchester.

The drum used for the delivery of the cable from Messrs. Henley's works to the pit mouth, which we also illustrate, measured 2.74 meters high by 1.67 meters wide, and the total gross weight, including the cable, being 8½ tons.

They have a depot where stocks are carried at 19 Szechuen Road, Shanghai.

SIBERIA'S GREAT FUTURE

The vast area of Siberia is as yet scarcely touched commercially, when we consider the richness and capability of production of its soil and its constantly growing population, says the *China Critic*.

In 1900, it was estimated that, out of a total of 19,727,000 acres of cultivated land, 11,625,000 acres were under crops in Siberia. Crops greatly fluctuate in Siberia, the yield in a good year is two or three times that of a bad one.

Siberia's exports of dairy products are rapidly increasing and have a most promising future. In 1898, 4,000 buckets of butter, each containing thirty-six pounds, were sent as an experiment to the London market; 30,000 buckets of butter a week were sent thither in 1901. The pasturage in this butter-producing region, which lies chiefly in the district of Tomsk, is so good that there is 7 per cent. of butter fat in the milk.

In 1902, a Danish firm was the first to export salted beef, mutton and pork from Siberia to London. Its success showed that Siberian mutton was good enough to compete with the best Icelandic mutton and may, in future, become an important factor in the meat markets of western Europe.

In 1901, the first canning establishment in Asiatic Russia was opened at Omsk. Exports of hides and skins from Siberia increased from 2,800 tons in 1899 to 5,200 tons in 1902. More than 1,600 tons of Siberian eggs are exported annually, many of them finding their way to the London market.

The fisheries of Siberia are very important. The River Amur is especially rich in salmon. The amount of preserved fish exported from Siberia grew from 640 tons in 1899 to 2,000 tons in 1902. The high price of salt and tin plate and the lack of skilled knowledge, are retarding the Siberian canned fish industry.

The vast coniferous forest zone of Siberia is yielding ever-increasing quantities of timber. On January 1, 1906, the State forests of Russia in Asia covered 650,687,597 acres. The timber industry has scarcely begun to be developed in Siberia.

Mining has the greatest future of any Siberian industry. Gold in placers is the chief mineral product at present. No statistics as to the amount of gold produced in Siberia can be obtained, as the figures are contained in the total output of the Russian Empire.

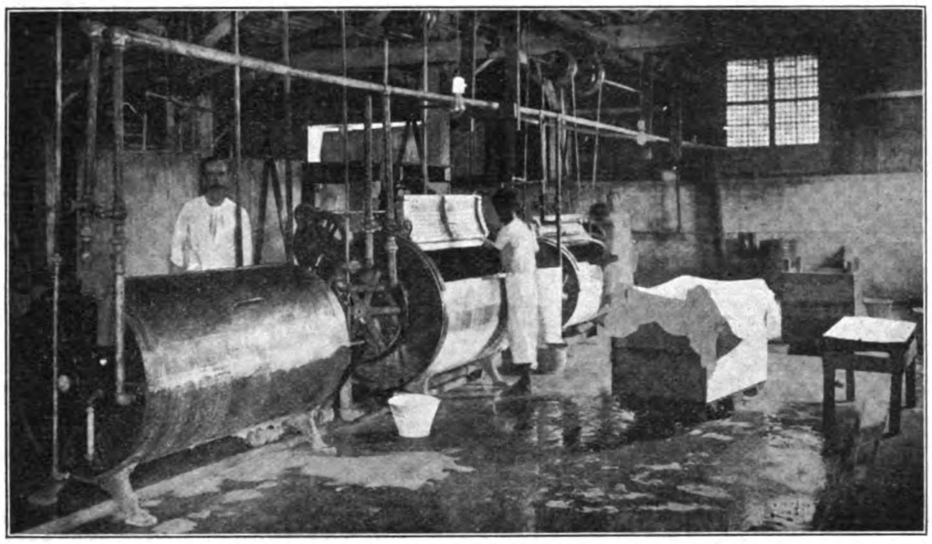
SUCCESSFUL WAR AGAINST THE MOSQUITO

Years of investigation have proven conclusively that the most dangerous insect that infests the tropics is the mosquito, and boards of health everywhere recognize the danger of the spread of disease by its carrying capacity. The activity of this insect as carrier of malaria, yellow fever, leprosy, etc., is too well-known to be subject of dispute. As a result many sections have attempted to eradicate the pest by means of petroleum which is spread over the surface of the water infested and which serves to obstruct the air tubes of the larvae causing them to perish. This method has not proven the greatest success and is acknowledged to be very expensive. The result is that many experts have devoted their energy to secure means of attaining the same end at a reasonable expense and if possible more effectively. The difficulty with petroleum seems to be the fact that it is difficult to spread it evenly on the surface of the water and that it did not serve to make the obstruction to the air tubes complete and effective.

A chemical compound, manufactured by the Phinotas Chemical Company of New York, is the latest development in this line and is said to be the most effective mosquito exterminator on the market. This preparation of oil is made from crude petroleum, and when applied to the water sinks immediately to the bottom where it spreads and remains for some time creating havoc among the larvae resting there. Then it rises to the surface in small globules which break and diffuse themselves over the surface in large areas. It is claimed that treatment with this preparation every six weeks prevents even the breeding of the larvae.

Sanitary Steam Laundry Company's Installation

The introduction of modern methods in the conduct of the different industries in the Philippines is becoming more marked every year. The latest and most striking, as directly affecting the comfort and health of the individual resident, is the departure inaugurated by the Sanitary Steam Laundry Company in the installation of a large steam laundry plant, on Calle Arlegui, Manila. Heretofore, the greaterpart of all the laundry work was done by natives, and their methods, involving a marked disregard for sanitation, were very crude. Established on all the dirty esteros and the Pasig River with equipment confined to a formidable paddle and a flat rock, these *lavanderos* supplied the population with alleged clean garments and at the same time assisted in spreading the germs of disease that were easily induced to emigrate from the dirty muddy waters. The use of boiling water or sterilizing was unknown and effectiveness in the removing of the stains and soiling marks from the clothes submitted to their tender mercies was measured only by the relative severity with which the clothes were paddled.



WASHING ROOM OF THE SANITARY STEAM LAUNDRY, SHOWING MACHINES, ETC.

To meet the growing demand for more sanitary measures in providing laundry for the residents and the shipping trade, a number of the leading merchants and capitalists organized a company with a capital of ₱50,000 and secured the premises now occupied on Calle Arlegui. The building is a two-story structure covering an area on each floor of 14,000 square feet, the first floor being utilized for the washing machines, extractors and apparatus for the manufacture of soap with tanks for its storage and for a sorting room. An annex of 20×40 feet is utilized for the boiler and engine room in which a 55 h. p. boiler is installed as well as a small electric plant. This will be increased to 120 h. p. soon and an electric power plant 30 h. p. will be installed to supply power heat and light.

On the second floor are the offices and the machinery department where the clothes are mangled, ironed, pressed and classified according to the character and quality of the article handled.

The latest machinery manufactured has been secured. As indicated in the illustrations, the equipment is of a general character and selected for the purpose of meeting every requirement of a sanitary laundry catering to every class of trade.

Washing Machines.—Two of the washing machines are of standard iron frame type and the other two are all metal washers. These have the reversible action and a capacity in all of 10,000 pieces daily.

In the wash house where these machines are located, the apparatus for manufacture and the tanks for holding the soap, are conveniently placed. This branch of the company's works was added in order to be assured of the quality of the product used.

Extractors.—Two extractors are located in the wash room and from them the pieces are taken upstairs by an electrically propelled elevator to where the mangle awaits them.

Six Roll Mangle.—This machine is a six roll Hagen mangle. It is built with three steam chests, an 8-inch roll, three 12-inch covered rolls and one 7.5-inch covered roll. The heating surface is about 7,920 square inches. It covers a floor space of about 130 square feet and weighs a ton.

Collar and Cuff Ironer.—This machine is of most recent design, electrically heated and propelled, and can be operated by one man as the goods return by chute and require no handling. The heated roll is 18 inches in diameter and every revolution covers 50 square inches of ironing surface. This gives large capacity with medium gloss and the change is made by a simple lever. Pressure is applied by lever and maintained by easy steel springs, giving uniform results.

Dip Wheel Collar and Cuff Starcher.—This machine has a capacity of 30 to 40 dozen collars and cuffs and makes 100 revolutions a minute.

Heat Retaining Starch Cooker.—This machine maintains the cooked starch at an even temperature therefore assuring proper distribution of starch. The heat-retaining kettle is of copper insulated, and incased in an outer jacket of galvanized iron. The insulation prevents loss of heat by radiation.

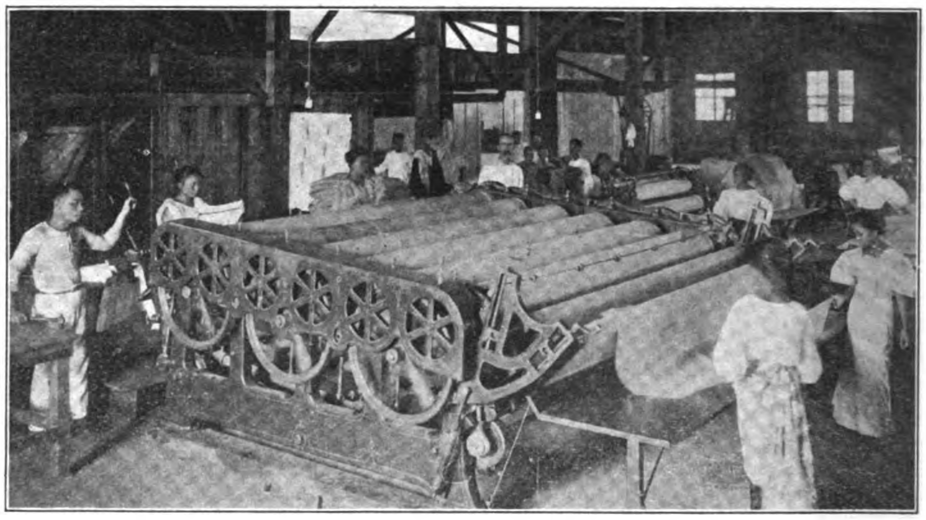
Shirt Starcher.—This unique machine starches the shirt automatically and performs the work in about 15 seconds where it would take five minutes by hand.

Wood Drying Room.—This important feature of the establishment has 14 compartments and is equipped for drying any class of goods rapidly and effectually.

High Board Shirt Ironer.—This machine has a capacity of 500 shirts a day and is so constructed that négligé shirts with buttons may be safely ironed without injury to the latter.

Spray Dampener.—This machine dampens the clothes preparatory to the ironing process. It provides a gentle uniform spray so that the goods are in a favorable condition for the best results when passed along to the operator for the final touches. It is a marked improvement on the Chinese filthy method of spraying through their teeth.

Puff Ironers.—These additions to the regular ironing facilities are provided for the purpose of handling fancy dress pieces and embroidered work so as to preserve it from deterioration while being ironed. The management desires to cater to this important feature of laundry work, as the greatest difficulty in the islands is to secure careful handling of valuable fabrics in the laundry process. By means of these puff ironers the wear and tear in the process of ironing is avoided and by a substantial network in which the soiled goods are encased during the process of washing, there is less damage to the goods than by hand laundry work. This feature is one of the specialties of the institution and the management believes it will prove one of the most extensive branches of the business.



SIX ROLL MANGLE INSTALLED IN SANITARY STEAM LAUNDRY PLANT.

Besides the machines enumerated there are steam presses, small handkerchief and napkin manglers, special collar pressing machines for special shapes, etc.

Special provision has been made by the company for the rapid handling of ship's linen and this enterprise on the part of the management has already been recognized by the United States Transport Service, The Transatlantica steamers and other vessels calling at Manila.

Extensive dry rooms have been installed especially for ship's trade and for the purpose of making special delivery. Under present conditions, the largest vessel calling at Manila may have its laundry within twenty-four hours after the company is notified by telephone. As evidence of the efficiency of the service, a recent transport was supplied with its laundry within three days and that without any special effort. This consignment amounted to about 22,000 pieces and, had the occasion required, the work could have been finished within twenty-four hours.

The laundry employs 83 natives who worked under American supervision. The officers of the company are: J. L. Pierce, President; Thomas J. Wolff, Vice-President and General Manager; L. F. Goodale, Second Vice-President; George Thiesson, the superintendent, is an experienced laundry expert having been associated for twenty years in the business in the United States.

The general manager was formerly the secretary of the Elks Club of Manila and is a young man of marked ability and enterprise.

The institution has been highly commended by the Philippine Bureau of Health as a long stride in the direction of domestic sanitation,

SANITARY STEAM LAUNDRY, MANILA

so necessary to perfect the health of the individual resident in the tropics.

Throughout the entire establishment, the enforcement of the strictest sanitary rules is maintained. Every piece of goods handled is kept at a germ killing temperature until it is prepared for distribution. The result is that the danger of infection is entirely removed.

THE NEW SHANGHAI CLUB

The laying of the corner stone of the New Shanghai Club house on the Southern end of the Bund took place on February 16th, Sir Pelham Warren, K. C. M. G., officiating. The new club was designed by Mr. Bertram H. Tarrant of H. B. M's. Board of Works and his plans were selected after a general competition among the architects of the Far East. As described by the *North China Daily News*, the design is in the English Renaissance style. "The front is treated with a central entrance, two corner turrets and Tsingtao granite columns along the front of the dining room on the first floor. There are to be six storeys including the basement. The construction will be fire-resisting throughout, steel girders, concrete walls and partitions and brick and stone walls being used. The foundations are a reinforced concrete raft. The basement, which is on the ground-level contains a bowling alley, barber's shop, and oyster bar for the use of the members, and is approached from the main staircase, and by one lift. The accommodation mentioned above is completely shut off from the rest of the basement, which is given up to store rooms, wine cellars, a calorifier room, and a bicycle room.

"There is a triple entrance in front of the Club, a short flight of stairs on each side leading to the main hall, which is the principal feature of the building. The hall is in English renaissance style, with Georgian treatment. It is surrounded by a colonnade of twin columns and the gallery round it serves the purpose of a corridor leading to the dining rooms, card rooms, etc. The staircases, which will be of marble, are, on the right of the hall, and there are two lifts within the semi-circle formed by the stairs. The hall is 120 by 40 ft., and is to be paved with marble. The bar, which is in the same position as in the old club is 110 ft. by 30 ft., and the secretary's office is at the back of it. There is a domino room at the end of the hall, facing the entrance, and a billiard room for five tables is at the back, to the right. The news room is to be in the old position, and there are two cloak rooms behind the staircase.

"The next floor has the large dining room which extends across the entire width of the front and is 120 by 44 feet. There are small balconies to each window. On the South side is a second dining room, 47 by 30 feet, opening into a smaller room, which can be used as a reception room. There is another small dining room, 17 by 30 feet on the North side, adjoining the main dining room. The card room (47 by 23 feet) is in the S. W. corner, and is entered by a corridor, so as to ensure quiet. The library, which is at the West of the hall, is a lofty room with a top light, a gallery, and two tiers of book-cases. The reading room opens out of the library, and is 40 by 24 feet. Another billiard room, to the right of the library and immediately over the lower billiard room, accommodates another five tables.

"The next two floors contain forty bedrooms, and bathrooms, all the latter being on the outside of the building. The bedrooms are arranged in two narrow blocks, to admit of lighting the hall and library, and thus have cross ventilation from both sides.

"The top floor contains a kitchen, 20 by 50 feet, store rooms, a self-contained flat for the European Stewards, washing up, and china and glass rooms, fifteen boys' rooms, and a pastry kitchen. There are three service lifts to the dining rooms, and a goods lift from the ground floor.

"The building contract has been placed with Howarth Erskine & Co."

The Shanghai Club is one of the most widely known institutions in the Far East. It was first organized on a substantial basis in 1860 for the purpose of constructing a club house. From the date of the trea y of Nanking in 1842, up to the organization, the residents had gotten together for social purposes and made their headquarters for this purpose in a godown on Park Lane. The present site was leased and the corner stone of the building laid in 1861. The building was finished and occupied by the club in 1864 at a cost of Taels 85,000. Since that time the membership of the club had grown and the need of increased facilities finally resulted in the present enterprise. The ground upon which the club stands is now the property of the organization and the new building will cost in the vicinity of Taels $250,000.

Mr. W. A. C. Platt, chairman of the Club Committee, presided at the laying of the corner stone, and in a short address reviewed the interesting history of the club. He then introduced Sir Pelham Warren.

At the present time the club has 1,320 resident and absent members and the library includes over 20,000 volumes.

Following are the committees of the club:

General Committee:—Messrs. W. A. C. Platt, *Chairman*, A. M. Marshall, *Vice-Chairman*, Messrs. Robert Carr, A. H. Collinson, W. D. Graham, G. Henriot, C. O. Liddell, Jas. McKie, G. Miller, C. Selby Moore, J. R. Patterson, F. Rayden.

Balloting Committee:—Messrs. C. M. Bain, W. H. Barham, W. H. Beatty, H. Browett, R. Carr, A. G. H. Carruthers, T. A. Clark, A. H. Collinson, E. O. Cumming, R. I. Fearon, H. Figge, W. D. Graham, G. Henriot, R. S. Ivy, W. S. Jackson, J. N. Jameson, C. O. Liddell, H. A. J. Macray, A. M. Marshall, Jas. McKie, G. Miller, C. Selby Moore, O. Mordhorst, J. R. Patterson, W. A. C. Platt, F. Rayden, F. A. Robinson, L. Walker, A. P. Wood, and C. W. Wrightson.

House and Finance Committee:—Messrs. W. A. C. Platt, A. M. Marshall, A H. Collinson, W. D. Graham, C. Selby Moore, G. Miller, and J. R. Patterson.

Library Committee:—Messrs. W. A. C. Platt, G. Henriot, C. O. Liddell, and G. Miller.

Billiard Committee:—Messrs. R. Carr, G. Henriot, C. Selby Moore, and F. Rayden.

SIAM RAILWAYS

The following report on the railways of Siam is from the pen of Mr. Consul Dunn:

Railways.—The first half of the Paknampoh-Utaradit section of the Northern State line of railway between Paknampoh and Phitsanulok (138 kiloms.) and the eastern line from Bangkok to Petriu (63 kiloms.) were completed and opened for traffic on 24th January, 1908. Construction is now proceeding on another portion of the Paknampoh-Utaradit section (Phitsanulok to Ban Dara), and a branch line of 6 kiloms. is also being constructed to connect the Bangkok terminus with the River Menam below Bangkok. This latter line is chiefly to facilitate the disposition of inward waggon traffic, which cannot conveniently be handled in the congested yard at the Bangkok terminus, but the line will also facilitate the discharge of cargo from and into steamers. Wharves for the accommodation of shipping and cargo will be erected at the river end of this line. The construction by a private company of the railway from Tachin to Meklong was completed in 1907. Direct railway communication between Bangkok and Meklong is thus established.

The total length of State and private railways now open to traffic in Siam is 882 kiloms.

Motor Services.—Rapid communication on inland waters has been greatly developed during 1907. Two Siamese companies under foreign control have started motor boat services. Some of these run, in connection with the railways, to town and villages in the provinces formerly rather difficult of access. At Paklat, a village, and on the river below Bangkok, a motor tramway has been constructed, which, in connection with a motor boat service and the electric tramways, enables passengers to reach Bangkok with greater ease. On the Paknam Railway a motor car service is also shortly to be established. Moreover, a large British steam launch company is extending its services with motor launches.

EIGHTEENTH ANNUAL DINNER OF THE INSTITUTE OF ENGINEERS AND SHIP-BUILDERS OF HONGKONG

The annual dinner of this institute, which represents a membership of over 250 members, was held at the Hongkong Hotel on the evening of February 26th and marked by the usual enthusiasm. This institute is the oldest of its kind in the east and its history is closely identified with the growth of the shipbuilding industry in Hongkong to its present formidable proportions. President T. Robertson, responding to the toast "Engineering and Shipbuilding in Hongkong," reviewed the successful history of the Institute and directed attention to the splendid library of over 400 volumes that had accumulated and to the great benefits from association that the members have enjoyed both socially and professionally, and in conclusion hoped that the day was not far distant when excellently equipped yards in Hongkong would be turning out Pacific greyhounds equal to those of the enterprising Japanese.

He was followed by Mr. Robt. Mitchell, chief manager of the Hongkong and Whampoa Dock Co., Limited, who has spent about 25 years in the colony and engaged actively during that period in connection with engineering and shipbuilding. He reviewed the growth of the industry and the remarkable increase in the capacity of the engines from what was considered large at 300 h. p. and now 4,000 h. p. engines turned out in the colony that was the occasion for little surprise. He was not so sanguine of the Hongkong greyhound for the reason that the maternal government to provide subsidies in Hongkong was lacking. He expressed the hope that when the University of Hongkong was established a John Elder would appear and endow a chair of engineering and shipbuilding. He concluded his remarks by reference to the proposed combustion engine and stated that he never liked to say good-bye to an old friend. The steam engine had been a trusty friend and could be depended upon. He appreciated that the internal combustion engine was yet in the experimental stage and had great possibilities before it. He anticipated that the rising generation would possibly see it perfected and reap untold benefits.

Among those present, says the *Post*, were: President T. W. Robertson; Past Presidents D. Macdonald, W. C. Jack, H. T. Richardson, and W. A. Crake; Vice-President T. Skinner; Messrs. H. B. Bridger, G. E. Glover, G. A. T. Cousins, G. A. Hill, L. G. Hales, C. L. Hughes, C. Strafford, J. Paine, J. Walker, Capt. Majer, J. Glendinning, J. Gray Scott, R. Packham, G. R. Edwards, J. Lawrence, F. T. Chapple, G. L. Duncan, F. H. H. Stevens, C. A. Peel, W. Waterhouse, H. Hunter, G. T. Lloyd, A. Ramsay, T. Petrie, F. Hicks.

DEUTSCH-ASIATISCHE BANK

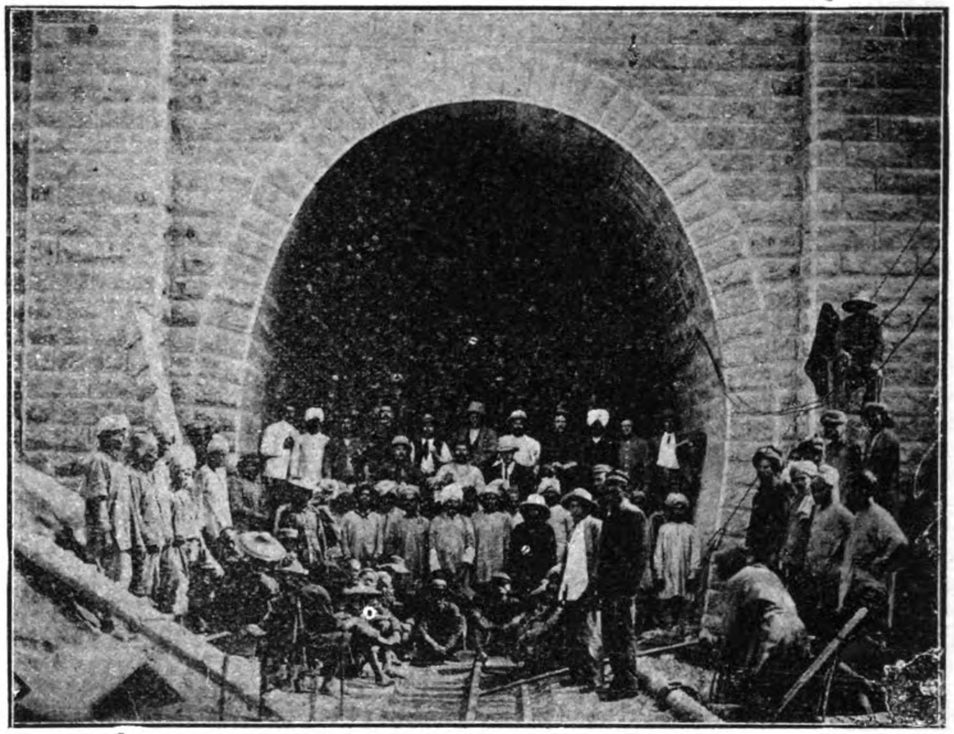
The German community in Tientsin have added not a little to the architectural splendor of the foreign Concessions—not only their own building of the new Club Concordia, but the British also by the erection of several handsome hongs—and the latest of these new structures is the building of the Deutsch-Asiatische Bank, says the *China Times*. This is situated not in the German Concession but in Victoria Road in the British Concession—a most central and advantageous situation.

The new building is certainly an admirable architectural ornament to Tientsin. It is in style an old French modernised. The designers and principal architects of the internal part of the building are Messrs. Becker and Baedeker, of Shanghai, whose local representative is Mr. Suhr. The wood-work throughout the building is dark oak, making a striking contrast with light walls. The electroliers, which are particularly pretty, are of antique and heavy pattern. Some were designed specially and were imported from Germany. The electric installation is the work of the Siemens-Schuckert Werke.

THE KOWLOON-CANTON RAILWAY

Mr. Murray Stewart, chairman of the committee, who presided at the annual meeting of the China Association held in Hongkong, February 2nd, in his address to the Association upon moving the adoption of the report for the year, gave an interesting review of the year's work. After touching on the desire of the British community of Tientsin to maintain a post office, the yarn lottery, trade marks and other minor matters, he devoted some time to a review of the progress of the railway to Canton and the prospect for its completion. In this connection he said:

"The day when it will be possible to take a ticket from Kowloon to Calais seems still provokingly remote. Of giant strides towards necessary. The rapid progress recently made was noted with satisfaction. The particulars are public property. Forty-four miles of track are open to traffic. Two trains run daily over the whole distance. Each way the journey takes three hours. This does not rightly indicate the top speed of the train. In the 44 miles are 12 stoppages. Additional trains run regularly to a halfway station some 20 odd miles out from Canton. Already the stimulating effect is apparent. It is not only that villagers throng the train. That fact is patent to any casual observer. A fact not so readily realized is that there is also the beginning of a local freight traffic—cattle and vegetables coming into Canton from the country—fish



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FINISHED ENTRANCE TO BEACON HILL TUNNEL, BRITISH SECTION KOWLOON-CANTON RAILWAY

the realization of this dream I wish we could hear more. As a beginning I wish we could even see good reason to believe that it will soon be possible to take a ticket from Kowloon to Canton. I wish there were good grounds for hoping that the Chinese section of the line thither will be completed as soon as the British section. I wish we could ascertain that the acquisition of the requisite land was being pushed forward vigorously. Unfortunately we know that it is not. For some reason there is delay. Money for the purpose has been handed over in various instalments to the official responsible, but still the business hangs fire. The difficulties of acquiring land for the Yueh Han Railway have been overcome with comparative ease. What is it that makes the difficulties on the Chinese section of the Kowloon line so much more formidable? No wonder if in this Colony we ask the question with some impatience. As regards the reference in the report to the work of construction on the Kwangtung section of the Canton-Hankow Railway a word of explanation is going out to inland villages. As a local line the success of the undertaking is already assured. Precisely because of that there is danger. There is danger lest the management should see no further than that. The directors are drawn chiefly from the local gentry and merchants. It is probable that few of them have travelled at all. It is therefore open to doubt whether they realize to the full the possibilities opening out of the little station yard at Wongsha. Failure to realize those possibilities now will result in curtailing them hereafter. If the railway is ever to be operated as part of a great trunk line and a large local traffic is to run simultaneously, a double track in the immediate vicinity of Canton will become a necessity, and there will be pressing need for more room at the terminus. It will be well for the future of the enterprise if these things are realized and acted upon promptly. The price of both land and labor will rise as the influence of increased facilities of communication makes itself felt. The directors should look ahead. They have the history of the shortsightedness of any number of other pioneer directors similarly situated in other countries to guide them. The criticism thus elaborated is made in no carping spirit. It is made in a friendly spirit. It is not made because this Association has in former years committed itself to the opi-

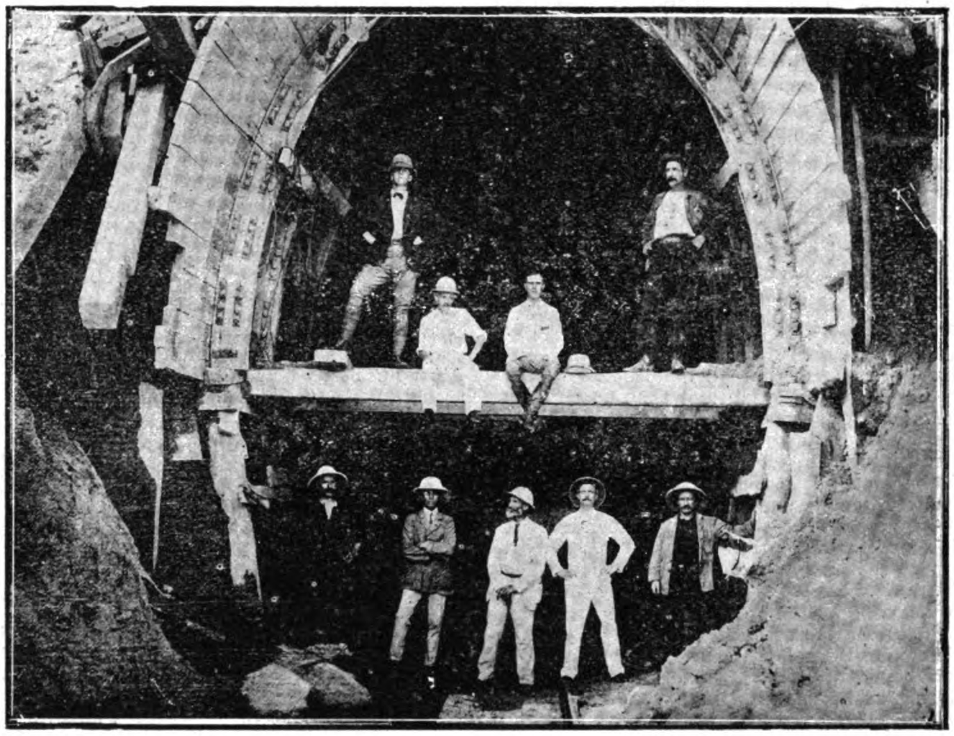
nion that the Chinese would be wise to entrust the building of the whole line from Hankow to Canton to a foreign contractor. We may hold to that opinion and yet, realising the uselessness of putting it forward at the present time, accept the position that the people of Kwangtung prefer to build their own railways and to wish them success. But our interest in the progress of the line justifies criticism of the methods employed in its construction. When the Hongkong Government lent the money for its redemption the understanding was that the line was to be built; the project was not to be hung up or merely played with. For sometime it looked as if the Chinese were merely playing with it. That was the impression which I received some two years ago when I paid a visit to railhead. I was still under that impression when at last year's annual meeting, after a year's absence in England and speaking with the greater freedom of an ordinary member, I made a remark which was held unduly to disparage the progress made. I desire to make what amends I can now by giving equal publicity to an opinion recently expressed by an expert witness, a highly qualified railway engineer, that, judged on the lines which have been adopted by the management, progress may be regarded as not unsatisfactory (applause). This does not disprove the contention that the Chinese by themselves cannot yet successfully undertake serious railway enterprise, because of course they are employing foreign engineers of various nationalities. The tunnelling difficulties which lie in wait, somewhere about the seventieth mile, and the heavy bridge work entailed by the crossing of the North River, will test the efficiency of their staff methods, in due time, but in the meantime the point I want to make is that, in expert opinion, the work done, as far as it goes—for the 45 miles of track at present laid—some ballasted, some not—some bridges permanent, others temporary—and for 35 miles of embankment reported as being nearly complete beyond —the work done does receive guarded commendation. But that is no reason why we should refrain from criticising, on general lines, the directors' policy, if we consider it susceptible of improvement."

HONGKONG TYPHOON SHELTER

Mr. J. F. Boulton, Second Assistant Director of Public Works of Hongkong, submitted an exhaustive report on the proposed typhoon shelter at Mongkoktsui to the Legislative Council last month and which was the result of a conference with Messrs. Coode, Son and Matthews, the consulting engineers. A modification of the original and extensive scheme is recommended and will enclose an area of 169 acres while the original scheme involved an area of 194 acres. The report follows:

"I beg to submit the following report on my recent conference with Messrs. Coode, Son and Matthews, the Consulting Engineers, with reference to the proposed shelter at Mongkoktsui, for the protection of small craft during typhoons. The object of the conference was to obtain an expression of opinion upon the suitability of the proposed shelter and the sufficiency of the proposed breakwater.

"To enable the consulting engineers to pronounce upon the subject, I supplied them with the following materials and data:—Charts of Hongkong Harbor and surroundings, showing the relative positions of the anchorages and of the proposed shelter; the depth of the water in and adjoining the shelter; the maximum exposure which the breakwater would have to face; and the positions of various sea walls which withstood the typhoon of 18th September, 1906, and of others which were damaged or demolished by that typhoon. Detail drawings of the sea walls referred to. Diagrams prepared from Kowloon Observatory records showing the daily direction, force, and duration of the wind during a series of years. Tabular statements showing the behaviour of the wind during a number of severe typhoons, as registered at the Kowloon Observatory. Information concerning the character of the sea as developed by a typhoon; and concerning the character of the small craft which the shelter is designed to protect. Particulars about the levels and nature of the hard bottom and overlying deposit on the site of the breakwater. A detail cross section of the proposed breakwater, and a specification of the same. A schedule of prices of materials and labor. Information about the location and character of the quarries from which materials are to be drawn for constructing the breakwater; about local methods of work; etc., etc., etc. The consulting engineers were of opinion that, as typhoons mostly begin from the north-east, the position of the shelter, being under the lea of the shore, was well chosen from the point of view of accessibility. They considered that the breakwater, either with regard to its direction or the extent of the sheltering work contemplated, could not be improved. But they were of opinion that, unless the widths of the entrances were contracted, the area effectively sheltered by the breakwater would be much and unnecessarily reduced. The obvious way of contracting the width of the northern entrance was to continue the breakwater northward for some distance; but I had to point out that, if that were done, the contracted entrance would be blocked by the rocky shoal which projects southward from K. M. L. 32 (the Asiatic Petroleum Co.'s Oil Works). The best way, therefore, and ultimately the most economical way, of narrowing the entrance would be to adhere to the position originally chosen for the north head of the breakwater, and extend the Oil Works point of land southward, by reclaiming the rocky shoal. I reckoned that the saleable value of the area reclaimed would go a long way towards defraying the cost of carrying out the reclamation. The southern entrance could easily be narrowed by curving in the south end of the breakwater sharply towards the shore; but I suggested that it would be preferable to adhere to the original plan entirely, as far as the breakwater was concerned, and narrow the southern entrance by building out a jetty from the shore, in line with Sixth Street. The jetty would be very useful as a public landing place, and the reduced entrance would occupy a position where vessels could easily make it without having to hug the shore. The consulting engineers approved of these suggestions and recommended that the widths of the entrances should be reduced accordingly—the northern entrance from 900 feet to 300 feet, and the southern one from 840 feet to 390 feet. They considered that these widths would be quite sufficient for the traffic, and for the promotion of such a circulation of water within the sheltered area as would prevent stagnation and the serious deposit of silt. These opinions were based on the information which I was able to give regarding the nature of the traffic, and the strength and direction of the tidal currents.



Reproduced from the FAR EASTERN REVIEW
ENGINEERING STAFF AT BEACON HILL TUNNEL HEAD

"With reference to the form of the breakwater: While approving of the general character of the original design, the Consulting Engineers were of opinion that certain alterations, which they considered of importance, should be made in the details. They recommended that the slopes should be flattened; that a wide berm of five-ton boulders should be substituted for the ramp of ten-ton concrete blocks; and that the upper portion of the outer slope, which was originally intended to be covered with concrete in mass, faced with granite pitching set in cement mortar, should simply be covered with pitching consisting of ten-ton concrete blocks set dry. The inner slope should be covered with dry stone pitching, in accordance with the original design; and the sizes and distribution of the materials in the rubble mound should, in the main, be in accordance with that design. The consulting engineers entirely concurred in believing it to be necessary that a trench should be dredged in the mud, for the purpose of reducing the lateral spreading of the foundations, as the rubble is deposited. Having regard to the nature of the bottom on which the breakwater has to be constructed, and the character of the local labour and

materials available, the consulting engineers had no doubt that a rubble mound structure, such as I proposed, was the proper and most suitable one to adopt. It is true that during the construction of such a breakwater its unfinished parts would be liable to damage from typhoons; but this unavoidable disadvantage would be more than compensated by the economy and convenience resulting from the adoption of a form of structure largely independent of skilled labor, and for which but comparatively little special plant and appliances would be required. The section recommended would also admit of the convenient rectification of such settlements of the work as would nevitably occur during construction and for some time after completion. The complete scheme for the boat-shelter, as modified by the consulting engineers, was estimated to cost roughly $273,000 in excess of the estimate for the original scheme. The excess was due to the additional works which were recommended to be carried out at the entrances, the cost of the breakwater as modified being estimated to be practically equal to the same as designed. But as His Excellency the Governor had laid it down that no scheme could be accepted which would exceed in cost the amount of my estimate, namely $1,540,000, and as the consulting engineers considered that the additional works were absolutely essential, and that no cheaper type of breakwater could be devised, it became necessary to reduce the cost of the scheme by curtailing the length of the breakwater, and the area of the shelter. Accordingly the consulting engineers, in collaboration with myself, prepared a plan of a smaller scheme, which we roughly estimated could be carried out for the amount of the estimate. The alteration consists of shifting the southern entrance 800 feet northwards, thus shortening the breakwater, which is curved in to suit the new position of that entrance. Otherwise, the scheme remains as before. The saving resulting from the shortening of the breakwater will be about equal to the cost of the additional works at the entrances, including the reclamation. The original scheme would have enclosed a total area of 194 acres of water, and according to the standard adopted by the consulting engineers, 166 acres of that area would have been effectively sheltered by the breakwater and additional works. The scheme as now modified will enclose a total area of 169 acres; and according to the same standard, 140 acres of that area will be effectively sheltered. In putting forward the larger scheme originally, with the wider entrance I stated that 166 acres would be well sheltered. With the narrower entrances, however, the same area would be sheltered to a much higher degree. In deciding which of the two schemes recommended by the consulting engineers should be adopted, it would appear that only two matters require to be particularly considered, viz., the areas and costs of the schemes. In other respects the two schemes are equal. The larger scheme was designed to include the greatest area of water which, having regard merely to the possibilities of the site, could be advantageously included. This area is much in excess of present requirements, and would probably not be fully utilized for a great many years to come. The area of the smaller scheme is more than sufficient for the accommodation of the present number of small craft, and provides a reasonable margin for a future increase in the number. With regard to the matter of cost, the smaller scheme has the advantage of being some $273,000 cheaper than the other. I may here point out that owing to the natural configuration of the site, the cost of the boat-shelter could not be further materially reduced without very materially reducing its area. I attach three sun-prints from drawings prepared by the consulting engineers, showing plans of the alternative schemes, and a cross section of the breakwater which is common to both."

FAR EASTERN COMPANY REPORTS

THE HONGKONG AND SHANGHAI BANKING CORPORATION.—The following general statement and balance sheet for the half year ended December 31st, 1908, was submitted by the Directors of this institution at the Ordinary Half-Yearly Meeting held at the City Hall, Hongkong, on February 20th, 1909:

The net profits for that period, including $2,005,774.81, balance brought forward from last account, after paying all charges, deducting interest paid and due, and making provision for bad and doubtful accounts, amount to $5,644,125.65.

The Directors recommend the transfer of $500,000 from the Profit and Loss Account to credit of the Silver Reserve Fund, which Fund will then stand at $14,500,000.

After making this Transfer and deducting Remuneration to Directors there remains for appropriation $5,129,125.65, out of which the Directors recommend the payment of a Dividend of Two Pounds Sterling per share, viz.: £240,000 and a Bonus of Five Shillings Sterling per share, viz.: £30,000, amounting in all to £270,000, which at 1s. 8¾d, the rate of the day, will absorb $3,122,891.57.

The balance $2,006,234.08 to be carried to New Profit and Loss Account.

Directors.—The Honourable Mr. W. J. Gresson has been elected Chairman for the year 1909, and Mr. H. E. Tomkins Deputy Chairman.

Mr. R. Shewan, Mr. E. Shellim and the Honourable Mr. H. A. W. Slade retire in rotation and being eligible for re-election offer themselves accordingly. The Directors very much regret to have to record the death of their colleague Mr. C. G. R. Brodersen last October. Mr. H. A. Siebs has been invited to fill the vacancy: this appointment requires confirmation at this meeting.

Auditors.—The accounts have been audited by Mr. W. Hutton Potts and Mr. J. W. C. Bonnar, who offer themselves for re-election.

E. SHELLIM,
Chairman.

Hongkong, February 9, 1909.

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The following is a report of the meeting:

The ordinary half-yearly meeting of shareholders in the Hongkong and Shanghai Banking Corporation was held in the City Hall at noon on February 20. Mr. E. Shellim, chairman of directors, presided, and those present included Hon. W. J. Gresson (deputy chairman), Hon. Mr. H. A. W. Slade, Messrs. E. G. Barrett, G. Friesland, C. S. Gubbay, W. Helms, C. R. Lenzmann, R. Shewan, H. A. Siebs, and H. E. Tomkins, directors, J. R. M. Smith (chief manager), Dr. J. W. Noble, W. Murray Stewart, T. Findlay Smith, J. A. Jupp, J. W. C. Bonnar, J. M. E. Machado, W. Hutton Potts, G. Murray Bain, C. H. Ross, T. P. Hough, G. del Castillo, J. Barten, Ellis Kadoorie, T. Skinner, W. Dunbar, W. H. Wickham, F. Maitland, E. H. Hinds, E. C. Lane, H. N. Mody, J. Cox-Edwards, J. C. Peter, A. F. Warrack, Capt. C. V. Lloyd, E. F. Mackay, R. R. Hynd, C. Pemberton, E. D. Haskell, H. C. Joass, Dr. J. H. Sanders, W. Taylor, D. Tohdow, H. M. H. Nemazee, F. H. Thomas, F. G. Carroll, Ho Fook, Ho Kom Tong, Lo Cheung Shiu, Lau Pun Chui, Wong Leung Him and others.

The Chairman said:—Gentlemen, before proceeding to discuss the report and accounts I have to refer with deep regret to the great loss sustained by the Bank through the death of Sir Ewen Cameron. The high tribute paid to his services by the Chairman in 1905, when prolonged illness led to his enforced retirement from active duty, will not be forgotten. Although in failing health, he continued up to the day of his death to take the keenest interest in all that concerned the bank and as a member of the London Consulting Committee was ever ready to give to the management the benefit of his ripe judgment and varied experience of men and affairs. By his death the Hongkong and Shanghai Bank loses a wise and able councillor and one whose name will always occupy a prominent place in its history. I have also to express on my own behalf and on that of my colleagues on the Board our sorrow at the untimely death of Mr. C. G. R. Brodersen. Mr. Brodersen had been a Director for a short period only but long enough to prove himself a valuable member of the Board and to earn our esteem. Turning now to the accounts, you will see that the result of the half year's working, including $2,605,774.81 carried over from the previous six months, leaves the sum of $5,629,125.65 available for distribution and I hope you will approve of a dividend of £2 per share, a bonus of 5|- per share, $5 lacs added to Silver Reserve Fund, and about $20 lacs carried forward, as recommended by your Directors. Despite all we have heard about dull and restricted trade, the Bank has had a good half year and it is a great pleasure to the Board to be in a position to recommend a bonus of 5|- per share in addition to the usual dividend. I need hardly say that these results testify to the manner in which the staff from the Chief Manager downwards continue to work in the interests of the bank and I am sure that you will approve the action of your Directors in voting, as a mark of appreciation, a bonus of 10 per cent. on salaries. (Applause). Comparing the statement of assets and liabilities with that of six months ago, you will notice an all-round increase in the figures. Chinese New Year fell on January the 22nd and its near approach, when money is always in special demand, accounts for the increase of some $35 lacs in the note circulation. Deposits show the large increase of about $43 millions. Of this increase gold deposits account for nearly $31 millions and although the lower rate of exchange on the 31st December last is responsible for a greater amount expressed in dollars, still in sterling the increase is £2,400,000, which being mainly due to the proceeds of recently issued public loans, that have not yet been drawn from our London office, can only be considered as temporary,. In the increase of $12 millions in the silver deposits may be seen a reflection of restricted trade, as a great proportion of such increase, no doubt, represents accumulation of capital waiting for a trade revival. You will readily understand that some difficulty was experienced in finding remunerative employment during the half-year for this large increase in the amount of money entrusted to the Bank's keeping. Bills payable show an increase of $30 lacs. On the other side, the amount of dollars deposited with the Hongkong Government is raised from $10,000,000 to $13,000,000. Cash, and bullion in hand and in transit, are higher by about $48 lacs. Bills discounted, loans and credits have increased by $10 millions and bills receivable by $27 millions. Consols, colonial and other securities show an increase of $48 lacs, due to temporary investments on account of the increased resources already referred to. In China the period under review has been one of great moment. The almost simultaneous deaths of the Emperor and the Empress Dowager whose influence over the destinies of China has made itself felt for a long period of years, and the accession of an infant to the throne with his father as Prince Regent, are events which have occurred, fortunately, without the peace of the land being disturbed. Let us hope that under the new régime many of the more urgently needed reforms will be inaugurated and carried into effect and that fresh developments of the Empire's vast potential resources may give a new impetus to the national prosperity and increasingly promote the well-being of the people. Favourable crops in India have stimulated exports and the recuperative power of the country is again manifesting itself. After a period of anxiety, due to curtailed applications for allotment, it is satisfactory to note

an increasing demand in London for remittances to India by Council bills, and further evidence of returning prosperity is to be found in the continued demand for bar silver. The continuance of the Indian demand, displaying as it does a remarkable capacity for absorbing silver independently of Government requirements, has been at once the chief feature and the principal support of the silver market; not, however, without encouraging new speculative tendencies which result in keeping the market in a highly sensitive state, rendering it liable to frequent fluctuations and producing an unsettling effect upon the China trade. Although I cannot say that trade in the Far East during the past six months has been altogether satisfactory, yet the hopeful view of the prospects taken at our last meeting has, I think, been justified. A healthier tone is noticeable, business generally is on a sounder basis, stocks of imports are gradually being reduced and crops have been good. Renewed commercial activity has sprung up throughout America, while in Europe money continues plentiful and cheap. Thus the time seems ripe for a return to prosperity, and the commencement of a new period of expansion in trade. (Applause). Before moving the adoption of the report and accounts, I shall be pleased to answer any questions you may put to the chair.

There were no questions, and the Chairman moved the adoption of the report and accounts.

Mr. C. H. Ross said: Gentlemen,—It affords me considerable pleasure to second the report and accounts which have just been presented for your acceptance. The Chairman's reference to the loss we have sustained through the much to be regretted death of Sir Ewen Cameron, and the acknowledgment of the valuable and practically life-long service which he rendered to the Bank, will, I feel sure, be appreciated by all shareholders present and absent. (Applause). The accounts presented, gentlemen, do not seem to me to require any comment—they appear satisfactory—eminently so—and I think we are to be congratulated on the very excellent results of the past half-year's working which our Directors have to-day presented. If this be the result of a half-year of dull and restricted trade, what indeed may be expected when the tide of prosperity again flows in the Far East! (Applause). A brief reference was made by the Chairman to changes which have taken place in Peking during the past few months—changes which, as the Chairman remarked, are of great moment. The disappearance of that commanding personality, the great Empress-Dowager, from the autocratic position which she had held for such a long period—the death of the Emperor Kwang-Hsu, and the accession to the throne of an infant,—are events, indeed, which for good or ill must affect the Empire with which our interests are so closely connected. Happily, the peace of the land has not been disturbed, and the changes consequent on the commencement of this new reign, appear to be taking place in a quiet, orderly and common-sense manner. The Regent, Prince Chun, who will hold the helm of state for many years to come, has the inestimable advantage, which I believe no other Chinese ruler of modern times has ever possessed, of having travelled beyond the limit of the Empire and visited foreign countries. It may be presumed, therefore, that his horizon is not altogether limited to within the walls of the Forbidden City and the Summer Palace, and I cannot help thinking that this knowledge of the outside world must be of great value to the country which he rules. I trust, therefore, that the Empire in which all of us have such great and important interest may be entering upon a new and prolonged period of prosperity, and that slow but sure progress may be made with the many reforms which are so urgently needed. (Applause). Results such as have to-day been presented for your acceptance and approval, can only be brought about by hard work and good judgment. Our thanks are therefore surely due to the Chief Manager and the staff who have achieved for us these splendid earnings—(Applause)—and I feel sure that you will all most cordially approve of the bonus to the staff which has been voted by the Directors. (Applause). I have very great pleasure in seconding the adoption of the report and accounts as presented to you to-day. (Loud applause).

The motion was carried unanimously.

Mr. A. Findlay Smith proposed that the election of Mr. H. A. Siebs as a Director be confirmed and that Mr. R Shewan, Mr. E. Shellim and Hon. Mr. H. A. W. Slade be re-elected Directors. Mr. John A. Jupp seconded and the motion was agreed to.

On the motion of Mr. E. F. Mackay, seconded by Mr. G. Murray Bain, Mr. W. Hutton Potts and Mr. J. W. C. Bonnar were re-elected auditors.

The Chairman: That is all the business, gentlemen. I thank you for your attendance. Dividend warrants will be ready on Monday.

Capt. C. V. Lloyd said: As almost, if not quite the oldest constituent of the Bank in the East, it seems not inappropriate that it should fall to my lot to say a few words to-day in recognition of the splendid services of our Board of Directors; what those are, you have already seen in the report which is now in your hands, and no eulogy of mine would add to their worth, although no doubt you will realize that more effectively when the dividend warrants are handed round. (Applause). Let times be ever so good, good direction is as essential in the prosperous days as in the days of adversity, and I think we can congratulate ourselves on having secured that in our Board. (Applause). I have much pleasure in asking you to join me in a vote of thanks to the men who have so successfully and triumphantly piloted the ship of the Bank through the troubled financial waters of the past year. (Applause).

The vote was accorded by acclamation and the meeting terminated.

The Hongkong Rope Manufacturing Co., Ltd.—At the annual meeting of this company, a final dividend of $1 was declared, making $2 for the year 1908. In presenting the report the chairman, Mr. R. Shewan, said in part:

"We are able to pay our usual dividend and to place $20,000 to reserve fund in spite of the fact that the price of rope has again fallen since this time last year. On the other hand I am glad to say that the cost of raw material has also come down to more reasonable figures, while the quality shows an improvement. Our actual sales have not been as large as usual, but this is only to be expected in a time of such depression for shipping as that we have passed through, when some of our best customers have had to lay up their vessels for want of employment. We have, however, seen the worst and may now look forward with confidence to a better demand for all commodities such as ours."

The Imperial Hotel Company.—The following was the distribution made of available profits for the last term:

	Yen.
Profit for the term	18,888
Brought from the previous term	3,403
Total	22,291
Legal reserve	1,000
Bonus	1,889
Dividend to shareholders (5% per annum)	18,750
Carried to next account	652

Tokyo Farmers and Mechanics Bank.—The 12th general meeting of this company was held in Tokyo last month and the following recommendations were approved:

	Yen.
Net profit	58,266
Reserve	18,000
Bonus	1,600
Dividend (10 per cent. per annum)	28,250
Carried forward	10,416

The Hongkong and Whampoa Dock Co., Ltd.—The following report and recommendations were made by the directors at the annual meeting held February 22nd, 1909, covering the second half of the year 1908:

The directors have now to submit to you their report, with a statement of accounts for the half-year ended 31st December, 1908. The net profit for the six months, after paying interest due and all charges, amounts to $261,981.53, to which has to be added the balance brought forward from last account $384,847.24—$646,-828.77; and from this have to be deducted directors' fees $10,000, auditors' fees $750—$10,750 leaving available for appropriation $636,078.77.

The directors recommend that a dividend for the half-year of 8 per cent. or $200,000 be paid to shareholders, that $21,000 be passed to a special account (No. 1 Dock Extension), that $3,000 be written from the value of Cosmopolitan Docks, $25,000 from the Floating Plant and the balance $387,078.77 be carried to the new account.

The new vessels in hand during the half-year under review were all completed and having passed satisfactory trials were duly accepted; the contract for building a new steel wharf for the Hongkong and Kowloon Wharf and Godown Company is well in hand and most of the material on the ground or in the shops.

We were entrusted with the building of five steel caissons for bridge foundations for the Canton-Kowloon Railway; one was delivered in 1908, and the others are nearly finished.

The only new vessels in hand are two small launches on stock at Cosmopolitan Dock, and a launch for harbour use at Kowloon Dock. We have had several enquiries during the year but nothing has so far resulted.

The boilershop extension at Kowloon is practically completed with the exception of an overhead electric crane now on order; the other extensions are well advanced.

The dredger has not been employed during the half-year except for a few days on our own account in connection with the new wharf at Kowloon.

Directors: The Hon. Mr. Henry Keswick, Mr. A. Fuchs and Mr. G. H. Medhurst having resigned their seats on leaving the colony, the Hon. Mr. W. J. Gresson, Mr. C. G. R. Brodersen and Mr. Edgar G. Barrett were invited to join the Board in their places and these appointments now require confirmation. Mr. C. G. R. Brodersen having died, Mr. H. A. Siebs has been invited to fill the vacancy, and his appointment now requires confirmation. In accordance with clauses 78 and 85 of the articles of the association, Mr. G. Friesland and Mr. D. W. Craddock retire by rotation but offer themselves for re-election. The Hon. Mr. W. J. Gresson has been elected Chairman for the year 1909.

Auditors: The accounts have been audited by Mr. H. U. Jeffries and Mr. H. Percy Smith, F.C.A. The directors recommend Messrs. Jeffries and Percy Smith for re-election.

Hongkong Fire Insurance Company, Ltd.—The General Managers report for 1907 shows a profit of $330,232.90, which sum, subject to the approval of the shareholders, it is proposed to deal with as follows, viz:—

Dividend of $27 per share	$216,000.00
Addition to Reserve Fund	114,232.90
	$330,232.90

The Siam Steam Navigation Co., Limited.—At the first ordinary meeting covering the first half year of this company's operations, the following disposition of the net profits was made:

5% for the half year to the shareholders	Tcs.	100,000.00
Remuneration to the Directors as per par. 40	"	3,342.80
To be carried to the Reserve Fund	"	10,000.00
Further dividend to the Shareholders 1%	"	20,000.00
To be carried forward to next half year	"	85.26
	Tcs.	133,428.06

HONGKONG, CANTON, AND MACAO STEAMBOAT CO., LTD.—This company paid a final dividend of $1.50 making $2.75 for the year 1908.

HUMPHREYS ESTATE AND FINANCE CO., LTD.—Out of a total available of $95,486.15 a dividend of 6% was declared and $5,486.15 was carried forward. It will be remembered that the sum of $50,000 was passed recently from the fund for equalization of dividends to the typhoon and floods fund and of this amount $6,738 has been expended.

THE SHANGHAI LAND INVESTMENT COMPANY, LTD.—At the annual meeting of this company held February 17th, 1909, a final dividend of 6% making 12% for the year was directed paid and Tls. 142,404.86 carried forward.

THE LAOU KUNG MOW COTTON WEAVING AND SPINNING, CO., LIMITED.—At the fifteenth ordinary meeting of this company, held last month, a dividend of Taels 4 for the year was declared.

THE SOY CHEE COTTON SPINNING COMPANY, LIMITED.—The balance of Taels 60,214.12 to the credit of profit and loss at the end of the year was recommended dealt with as follows:

	Tls.
To write off 5% for depreciation of Machinery	34,306.08
To write off 10% for depreciation of Furniture	288.42
To write off 2½ for depreciation of Buildings	6,791.99
To place 5% of net profit to Legal Reserve Fund (in accordance with Rule 24 of the Articles of Association)	2,915.82
to carry forward to 1909 Account	15,911.81
Tls	60,214.12

THE HONGKONG ICE CO., LTD.—The following is the 28th annual report submitted by the directors at the annual meeting covering the year ended December 31st, 1908:

The general managers have pleasure in submitting a statement of the Company's accounts for the year 1908. Including $4,578.41 brought forward from the previous year, and after deducting $20,000 paid as an interim dividend of $4 per share, the balance at credit of profit and loss account is $116,475.03, which it is recommended should be appropriated as follows: A final dividend of $15 per share, $75,000; provision for contingencies, $30,000; to write off property account, $2,000; to write off launch and lighter account, $1,858.90; to carry forward $7,616.13—$116,475.03.

THE KOWLOON LANDS AND BUILDING CO., LTD.—This company declared a dividend of $1.50 per share for the year 1908.

THE CHINA PROVIDENT LOAN AND INVESTMENT CO., LTD.—At the annual meeting of this company, a dividend for the term of 80 cents a share was declared. In moving the adoption of the report Mr. R. Shewan, the chairman, made the following characteristic remarks:

"During last year trade in all its branches lay under a heavy cloud, although I am glad to say that cloud has shewn some signs of lifting since the year closed, and consequently our business of making loans called for increased vigilance on our part, but I am sorry to say that one of two old clients, owing to the prevailing depression, were unable to meet their engagements compelling us to enter into possession. At the same time rates of interest were not so high as money was not scarce, it was satisfactory security that was lacking. Under these circumstances, which, however adverse, are nothing more than may be expected in a bad year such as that we have just passed through, we may congratulate ourselves on the figures now before us. Our gross earnings are higher than ever, and besides paying the usual dividend of eight per cent. on an increased capital, we are able to place ten thousand dollars to Reserve Fund. Unfortunately we have had to deplete that fund by $30,000, principally to meet heavy depreciation on our investments and possible losses on some accounts about which we are a little doubtful. The latter are of no great significance, but the depreciation on shares is severe. I feel myself that in writing down such a stock as Cements to $10, we are valuing them at panic prices, but it is best to be on the safe side and to give no opening for criticism. It has been no year for selling stocks nor do I think we should be doing justice to ourselves or to the stocks themselves by trying to realize on such a market. There is nothing for it but to wait for better prices and for the better time which I feel sure is not far off when capitalists will look back with astonishment to the quotations now current and with regret that they did not take fuller advantage of such cheap and favourable opportunities for investment. Our godown business has answered all our anticipations and has worked very satisfactorily, particularly so for a first year's experience. There is nothing in the accounts that calls for special comment, some of the items are a little larger, such, for instance, as interest paid and Sundry Debtors, but this is only the natural result of a larger business and an increased number of accounts. Altogether our position is now a very sound one, our loans are spread over a wide area, all known losses are provided for, and our investments written down to figures well below their true value. As to the future I see many reasons to be optimistic, and I hope no one here listens to those who talk of the Colony being played out and having seen its best days, etc., etc. The simple fact is that business here, as almost everywhere else in the world, has suffered the reaction consequent on a period of inflation and overtrading, and as usual the weaker have gone to the wall. But that is all, the resources and facilities of the port as a depot for the trade of Southern China are still untouched and unrivalled, and will be enormously increased when once communication by rail is opened up with the great cities of the interior. In the meantime I feel sure, as I said before, that better days are at hand, and when the long-looked for improvement comes, and the voice of the pessimist is heard no more in the land, those who have had faith in Hongkong and its fortunes will reap their reward (hear hear).

THE IMPERIAL BANK OF COMMERCE.—The following distribution of profits were made at the recent meeting

	Yen.
Legal reserve	20,000
Dividend (4 per cent. per annum)	112,000
Carried forward	238,125

THE YOKOHAMA ENGINE AND WATERWORKS CO., LTD.—At the half yearly meeting a dividend of yen 2.50 a share was directed paid.

THE DAI NIPPON BREWERY CO.—The following are the accounts and recommendations for distribution of profits for the half year:

	Yen.
Profit for the term	567,700
Brought from previous term	388,129
Total	955,829
Legal reserve	62,993
Bonus	26,735
Dividend (15% per annum)	520,000
Carried to next account	346,101

THE TOKYO PREFECTURAL SAVINGS BANK.—The following distribution was approved at the general meeting for the term:

	Yen.
Net profit	48,489
Reserve	15,000
Dividend (6 per cent. per annum)	31,314
Carried forward	2,175

The total deposits on hand stand at 2,270,000 odd yen.

FIFTEENTH BANK.—The following accounts and distribution for the term were approved:

	Yen.
Net profit	1,032,109
Brought from the last term	665,695
Total	1,697,804
To reserve	100,000
To bonus	50,000
Dividend (9 per cent. per annum)	810,000
Reserve for construction expense of Nihombashi branch	50,000
Carried to next account	687,804

THE PHILIPPINE RAILWAY COMPANY

The recent successful flotation of $4,000,000 of Philippine Railway Bonds by Messrs. William Salomon & Co., bankers in London, Amsterdam and New York is evidence of increasing confidence in Philippine development enterprise and especially since the amount was greatly oversubscribed.

These bonds carry a United States Government guarantee of payment interest until their maturity or redemption.

Of interest in connection with the financial feature of the Philippine Railway enterprise, is the report submitted by President Chas. M. Swift on October 10th, 1908, for the information of Messrs. William Salomon & Co. which follows in part:

"The concession of the Company covers the construction of lines of railroad in the Philippine Islands as follows:

Island of Panay	100 miles.
Island of Negros	100 miles.
Island of Cebu	95 miles.

"The construction of 35 of the 95 miles on Cebu is optional and the Company has the right to construct an additional 25 miles of main line on each island.

"*Legal Authority*.—The legal authority of the Company is embodied in the perpetual franchise and concession granted on July 13, 1906, by the Philippine Government, under authority of the Acts of the United States Congress, dated July 1, 1902, and February 6, 1905. The privileges granted by the concession include, besides the franchise and authority to build and operate the railroad lines, right of way 100 feet in width through public lands, the right of eminent domain, the right to take timber, earth, etc., from certain public lands, the right to operate electrical transmission wires for commercial as well as Company uses and the right to import, free of duty, the materials necessary for the construction of the railroad. In addition, the concession provides for the guaranty of bond interest, and fixes the Company's tax rate at ½ of 1% of gross earnings for a period of 30 years (during the life of the First Mortgage Bonds) and 1½% for 50 years thereafter, these payments being in lieu of all other taxes. The Company is thus assured of a graduated tax based on its business, and comparatively very reasonable in amount, as the average railroad tax rate in the United States equals 3% of gross earnings.

"The concession stipulated that the construction, equipment and the rolling stock must be first-class, equal in quality, with proper regard to local conditions, to the best American practice and in accordance with definite plans approved by the Government. The Philippine Government also reserved the right to inspect, through its Auditing, Engineering and Railroad Bureaus, the Company's books and accounts, and to obtain representation on the Company's Board of Directors. These provisions have been carefully followed in the course of construction. An engineer, appointed by the Government, has closely supervised the construction of the road and all expenditures have been approved by the Government, which has also appointed two members of the Board of Directors.

"*Construction*.—The entire design and construction of these lines is being carried out by J. G. White & Co., Inc., engineering contractors of New York City.

"Construction work has been under way for about two years on the islands of Panay and Cebu. The main line on the Island of Cebu, extending from Danao to Argao, 60 miles in length, was preliminarily completed and placed in construction operation in May, 1908. On Panay, 20 miles of road, extending from the terminus at Iloilo to Pototan have been completed, and an additional 20 mile section, extending north from Pototan, is expected to be

ready for operation in December, 1908. Terminals, with harbor frontage at Iloilo, are about 75% completed. Final location surveys for the balance of the projected mileage have been completed, with the exception of the northern section of the line in Negros. Equipment, consisting of 12 locomotives, 23 first and second-class passenger cars, and 80 box cars, is now in service, in addition to construction equipment, including 100 flat cars. Two additional Baldwin locomotives have been ordered.

"*Traffic Estimates.*—A conservative estimate based on traffic in sight, and made under the personal supervision of Mr. William B. Poland, Vice-President and Chief Engineer of the Railway Company, after a careful investigation of the territory, indicates that the Railway lines now completed and under construction, will fully earn the interest on their bonds, even during the first years of operation. Mr. Poland, who is the chief operating official of the Company, estimates that about 75% of the revenue will be derived from passenger traffic. The inhabitants are fond of travelling, and pleasure as well as business furnishes cause for frequent inter-urban journeys.

"*Territory Served.*--The three islands of Panay, Negros and Cebu have a population per square mile, respectively, as follows: 161, 94 and 336, the average being 160, about equal to the density of population of British India. The comparative advantage in this respect of the islands on which the Railway Company's lines are located is better shown by the fact that with less than 10% of the total area of the archipelago they have nearly one-quarter of the whole population, and nearly 98% of their inhabitants are recorded as civilized by the census. The population per square mile tributary to the railway lines exceeds the averages for the islands, and has been estimated at 450 for Cebu and 175 for Panay, or at the rate of about 5,000 per mile of road in Cebu and 4,000 in Panay. The ports of Iloilo, the southern terminus of the line in Panay, and of Cebu located on the line in Cebu, are two of the largest cities of the Philippine Archipelago. The Government has expended large sums for the improvement of their harbor facilities.

"*Bonds.*—The Company has authorized an issue of $15,000,000 First Mortgage 30-year Sinking Fund 4% Bonds. These bonds are secured by a First Mortgage lien on the railway lines and property of the company in the Philippine Islands, and under the terms of the concession, are only issued against completed mileage to the extent of 95% of the cost, as approved by the Philippine Government. It is further stipulated that bonds can only be issued upon completed sections of the road not less than twenty miles in length. The principal and interest are payable in United States gold coin, the former on July 1, 1937, and the latter semi-annually January 1 and July 1. An annual sinking fund of ½% of the bonds outstanding from July 1, 1911, to July 1, 1921, and of 1% of the bonds outstanding from July 1, 1921, to July 1, 1937, must be provided by the Company before any dividends can be paid on the stock. Bonds may be drawn by lot for this sinking fund at 110 and interest if not purchased at or below that price, at which the entire issue is also subject to redemption on any interest date, upon three months notice.

"*Interest Guaranty.*—The Government of the Philippine Islands guarantees by endorsement on each bond, the full 4% annual interest on these bonds, until their maturity or redemption. Any payments made by the Government under this guaranty rank as a lien upon the property, subject to the lien of the First Mortgage Bonds.

"*The Railway Company.*—The Philippine Railway Company was incorporated March 5, 1906, under the laws of the State of Connecticut and has a capital stock of $5,000,000. A list of the officers and directors follows:

"*Officers.*—Chairman of the Board, William Salomon; President, Charles M. Swift; Vice-President, Frederic H. Reed; Vice-President, Clarence McK. Lewis; Vice-President and Chief Engineer, William B. Poland.

"*Directors.*—Gen. C. R. Edwards, Chief, Bureau of Insular Affairs, U. S. War Dept.; Gen. T. H. Hubbard, President, International Banking Corporation; Clarence McK. Lewis, William Salomon & Co.; Major Frank McIntyre, Asst. to Chief, Bureau of Insular Affairs, U. S. War Dept.; Wm. Barclay Parsons, Engineer; Alonzo Potter, William Salomon & Co.; Frederic H. Reed, Vice-President, J. G. White & Co.; William Salomon, William Salomon & Co.; Charles M. Swift, President; Cornelius Vanderbilt, Capitalist; J. G. White, President J. G. White & Co.

"Trustees for the First Mortgage Bondholders, THE BANKERS TRUST COMPANY, New York; General Counsel, CRAVATH, HENDERSON & de GERSDORFF, New York; Examining and Consulting Auditors, PRICE, WATERHOUSE & CO., New York and London.

"Gen. Edwards and Major McIntyre are officials of the Bureau of Insular Affairs of the War Department at Washington, D. C., and represent the Government of the Philippine Islands upon the Board."

RUBBER REPORT FOR 1908.

The report of Messrs. Lewis and Peat of London on plantation grown rubber covering the product of the Straits Settlements, Malay States and Ceylon for the year ended December 31st, 1908, is most exhaustive and of the greatest interest. The production for the year shows a marked increase and the sales during that period have been brisk generally. They also refer to the fluctuations in price due to the general depression during the early part of the year and the marked recovery during the last quarter. Of this report, the following extracts are quoted:

"The satisfactory feature of the past year is the marked increase in the production and imports of Plantation Rubber, viz., 2,100 tons against 1,250 tons in 1907, and the very large increase in the number of buyers and consumers, who now use Plantation sorts, keenly competing for them at the London auctions and by private treaty. Instead of increased supplies adversely affecting the market, consumers, who have taken to using it, have been more and more interested in it from the fact that they are able now to depend upon getting what they want regularly and in increasing quantities, which at first with only small supplies was a difficulty.

"*Sales.*—The larger quantities catalogued at the fortnightly sales which averaged something like 100 tons per month have been readily taken. The private business between the sales has also developed considerably, and we now have a regular and open market for all quantities. We may say with confidence that now practically all manufacturers, large and small, use Plantation Rubber and are likely to do so more and more.

"In consequence of the growing importance of Plantation Rubber, the largest and most important firms in the trade being best able to judge of its great future, have made, and are making their arrangements to handle and deal with it in greatly increased supplies. Production must increase enormously during the next few years, but even now the Trade is ready to cope with it whatever its dimensions.

"*Fluctuations in Price.*—Throughout the year the fluctuations in the price of Rubber have been very great, and during the American depression and cessation of buying heavy stocks of all grades including medium and wild rubber accumulated enormously, at one time the stock of mediums alone in Europe amounted to some 10 or 12,000 tons and was for some time practically unsaleable. With the Fine Para Crop coming in and being pressed for sale, the price dropped to 2s. 9d. per lb. the lowest price touched for 10 or 12 years—and as there were scarcely any American orders, European buyers had to take the bulk of the crop. The decline in Fine Para brought down the value of Plantation and of all grades—but with a good European demand throughout and a revival of American orders—quite a sensational reaction set in about the middle of the year, and prices rapidly advanced pence per lb. almost without a break until November, when Fine Para touched 5s. 5d. per lb. and Plantation 6s. -.

"With the greatly enhanced values of fine Para and the enormously increased consumption shown by the heavy deliveries to all parts, consumers turned their attention to medium grades, and the whole of the enormous accumulated stocks disappeared and went into consumption. These facts speak for themselves and show the very healthy state of the Rubber Trade generally, notwithstanding the constant complaints of bad trade and slack business. Nine months ago we had enormous stocks and low prices, to-day we have exceedingly small stocks and excellent prices and a good demand.

"*Result of Decline in Values.*—One result of the very heavy decline in the values early in the year of medium grades and wild rubber (other than Para) has unquestionably been to enormously decrease the production and collection of a great many sorts, and hence our stocks have not been replenished by them, and it is very doubtful if they will be, if supplies of Plantation are available and sufficient to meet the present large and ever increasing demand.

"It is impossible to give any forecast as to prices in the future, but we are of opinion that fluctuations will not be heavy for some time to come, and we look for a continued good demand both for Fine Para and Plantation, a demand sufficient to take and consume at satisfactory prices all that the Amazon and Plantations are likely to send us at present.

"*Biscuits* only come in small quantities now, and no doubt this form of preparation will give way to sheets or Crêpe which are far easier to manufacture and handle on the estates. The very finest and palest Warriapolla biscuits have always sold at fancy prices for special purposes. We have also had good lots from Sorana, Tallagalla, Densworth, Doranakande, Syston, Arapolakande and Langsland.

"*Sheets* have come in increasing quantities and a regular standard quality has been established making business easier both for sellers and buyers. Consumers can now depend upon their purchases and get larger and increasing quantities with but a comparatively small variation in quality and loss in weight. In this grade, color has made but little difference in the price, buyers rather going by the strength and condition. The best known marks came from Vallambrosa and Highlands and Lowlands Estates, and their shipments have been most regular in quality and of considerable size. Amongst the best standards attained we may also mention Perhentian Tinggi, Bukit Rajah, Jugra and Deviturai. The Penang Sugar Estates have also sent some remarkably good lots.

"*Crepe.*—The bulk of the Plantation Crop now comes in this form, and we think it can be taken as the most satisfactory preparation. Now that the quality and color is more even and the parcels larger, buyers can repeat their orders and be sure of what they are buying and an order for five or ten tons can now be executed for a single grade with comparative ease. The quality shipped during the year has been excellent and the color has much improved. The very fine pale, in some instances almost white, has realized extremely high prices, and there is a large and increasing demand for this quality for special uses. The medium and mottled is always readily saleable. As to the good dark grades there are many new buyers constantly enquiring, and these qualities more than any other are being used instead of the better wild rubbers. Amongst the many fine marks that call for special mention, the following have been specially noticeable. Jebong Crêpe, which is almost white, but no longer stands alone, as several other estates are now producing quality and color equally as good. Rosehaugh, fine thick Crêpe, is most popular and one of the best preparations we get. Damansara, Matang, Malacca, Sungei Kapar, Pataling, Linsum, Linggi, Terentang and Atherton are all coming to the front both in the quantity and quality of their shipments.

"*Block.*—In this mode of preparation Lanadron Estate still leads, the shipments have greatly improved during the year, the color being much paler than it was in 1907. We are glad to notice some nice samples from other estates quite as good in quality, but only in very small lots as yet. Very high prices have been paid, and there are now large and regular buyers of fine clean palish.

"*Worms.*—Very fine pale still command a very high price, but we regret to see that as the quantities increase the quality as far as color is concerned is not as good, and only a small proportion turns out almost white as wanted. Gikiyanakande Estate still sends the bulk of this grade, but several other estates, including Taldua, have shipped some very fine though small lots.

"*Scrap.*—Scrap has sold extremely well throughout the year, both in ordinary crinkly scrap form and in brown Crêpe. In Crêpe form scrap certainly realizes a better price, and we would strongly recommend planters to prepare it in this way, taking care not to roll too thin which makes it weak and brittle. Scrap Crêpe should be hard, strong and gristly.

"*Castilloa.*—Only small shipments from plantations are coming as yet, but the sheets from Ambanganga Estate in Ceylon show what can be done, and that rubber from this tree properly prepared is nearly equal in quality to ordinary Para sheets and biscuits. Nothing of any note has come from Java and Sumatra so far, and we have only received small lots from the West Indies. The improvement in preparation of small lots from Tobago is most gratifying.

"*Rambong.*—Rambong (Ficus Elastica) is now a most popular grade and has realized splendid prices throughout the year. It is most liked in Crêpe form. Some very fine lots recently realized up to 4*s*. 8½*d* per lb. There is a good and increasing demand and any quantity will be welcome."

CHINA'S NORTHERN RAILWAY

According to the correspondent of the *Peking* and *Tientsin Times* at Peking under date of February 8th the section of the Peking-Kalgan Railway from the Nankau village to Huailai was opened on February 6. The line formerly ran only from Fengtai to Nankau, but now has reached the Pass.

The opening was a great success, and the Chief Engineer and Director General of the Road, Taotai Jeme Tien-Yow, A.M.I.C.E., as well as the sectional engineers, among whom is Yen Te-Ching, the builder of the 3570 feet long tunnel at the Pass, are to be congratulated upon the success.

From the entrance into the Pass at Nankau to its highest point, the road rises in a distance of only ten and a half miles fully 1800 feet. The place is well worth seeing as the scenery is beautiful, and many interesting things may be noted, such as when columns of camels take tea and other products into Mongolia or bring wool, etc. from the outer marches of the Empire.

The trains through the narrow pass are worked by "Mallett" locomotives, which have given full satisfaction.

Sectional Engineer Yen Te-Ching is now to join the Anhui section of the Yangtze Valley railway and later on will be Assistant Chief Engineer on the construction of the Szechuan line.

Reviewing the report of Taotai Chan Tien-yu, (Jeme Tien-yao), director and chief engineer of the Peking-Kalgan line, *Chinese Public Opinion* says:

"According to a recent report from Taotai Chan Tien-yu, (Jeme Tien-yao) director and chief engineer of the Peking-Kalgan Railway, which is in course of construction with Chinese money and supervision, the whole line, about 443 li in length, will be completed before the end of 1909. All the tunnels at Pa-ta-ling and Chu-yung-kuan are fast approaching completion. The Ministry of Communications has issued instructions to Taotai Chan, commanding him to make a careful survey from Kalgan to Kueihuacheng and Shuiyuancheng (on the Shansi and Mongolian borders), so that the line may be extended to the two cities and thence to Kulun (Urga, capital of Mongolia) and Kiakhta (on the Russo-Chinese frontier). It will further be extended to Kansuh and Hsinchiang forming the great north-western link as approved by the Chinese Government. The required capital for the construction of the Kalgan-Kueihuacheng-Shuiyuancheng railway will be taken from the surplus profits of the Peking-Mukden line in the same way as for the Peking-Kalgan railway.

It is estimated that about Tls. 20,000,000 will be required for extending the Peking-Kalgan line to Kiakhta *via* Kueihuacheng and Kulun, and it will take more than six years to build it. As Taotai Chan, who was educated in the United States, and is probably one of very few competent Chinese railway engineers who can build lines without foreign assistance has shown skill and experience in building the Peking-Kalgan railway, the Ministry of Communications will no doubt put the full responsibility of the extension on his shoulders.

In view of general shortness of money in every part of China at the present moment, and the large sum of money it requires for the construction of this important railway which will traverse Chihli, Shansi, Mongolia, Kansuh, Hsinchiang and Ili, I think it will take a few years for the Chinese Government to put the proposal into effect. The commerce between Mongolia and North China will be greatly developed when the Kalgan line is completed in 1909, and then extended to Kulun and Kiakhta. The Ministry of War is also in favour of the construction of the proposed extension, for, from a military point of view, it will be very useful to China to have quick communication with Mongolia and Chinese Turkestan."

PHILIPPINE GOLD OUTPUT FEBRUARY

Benguet Consolidated Mining Company 150 oz. and 200 pounds cyanide.
The Paracale Gold Dredging Co. 630 oz.

F. M. S. TIN OUTPUT, JANUARY

	Piculs.
Belat	531
Bruseh	305
Gopeng	555
Kanaboi	266
Kinta	270
Kledang	455
Kuantan	60
Lahat	1278
New Gopeng	100
Pahang Consolidated	1500
Pusing Lama	638
Rambutan	170
Royal Johore	140
Salak South	372
Sempam	73
Serendah	294
Sipiau	90
Tekka	300
Tronoh	1762

BUSINESS NOTES

The Export and Import Lumber Company of Manila, successors to Messrs. B. W. Cadwallader & Co., has been extending its operations during the last year and also enlarged their yards in San Miguel and Nagtajan. The Schooner W. H. Talbot recently discharged one million feet of Oregon pine for this company and a million and a half is now on the way. Besides the importation of Oregon pine, the company is making a specialty of railway sleepers and other timbers for railroad construction of Philippine hardwoods. Recently a shipment of 7,000 pieces for sleepers was made to China for use in the construction of the Yangtzse railways. This is no doubt a forerunner of larger orders from China. A contract for 200,000 feet of native lumber was concluded with the American Federal government for use in the fortification work on Corregidor. The Pacific Export Lumber Company of Portland, the largest exporters of Oregon Pine from the Pacific states to the Orient is interested in this company and its standing and equipment could not be better. The mills at Tanduay are always busy and the development of the Philippine hardwood lumber trade is receiving special attention and with great success. Mr. W. W. Paine, the general manager, recently returned from a trip to North China and is greatly encouraged at the prospects of the Philippine hardwood export trade to China.

The construction of the Philippine General Hospital buildings for the Insular Government at Manila under the direction of the Manila Construction Company is proceeding apace. Mr. Thurber, the manager, has a perfect organization and his machinery equipment is well adapted to expeditious fulfilment of the contract. The main work on the buildings will be completed by the beginning of the rainy season. The contract price for the group of buildings is in the vicinity of ₱750,000.

A GERMAN MINING ENGINEER, WITH SIX YEARS' ACTIVE EXPERIENCE IN MINING ENTERPRISES IN THE EAST, DESIRES TO MAKE A CHANGE. GRADUATE OF MINING ACADEMY. ADDRESS, "GERMAN," CARE OF THE FAR EASTERN REVIEW, SHANGHAI.

NAVAL ELECTRICAL CONTRACT

One of the largest contracts for electrical supplies has been just awarded by the Navy Department at Cavite to The People's Company, of Manila, and includes a large order for fans, motors, carbons, etc.

The principal item was a large consignment of incandescent lamps which the Navy heretofore has been obtaining direct from the Navy Yard, New York; it is understood that The People's Company is obtaining these lamps from Japan, where the General Electric Co. has a branch manufacturing plant

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ADVERTISEMENT

Office of the Municipal Board.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I, until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sixty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board

J. P. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

TIENTSIN ELECTRIC RAILWAY.—The gross receipts of this company for year ended December 31st, 1908, amounted to $191,285.

WIRELESS ON AMERICAN BOTTOMS.—The United States Congress is considering a bill requiring all the vessels of the American marine carrying passengers to have installed thereon a wireless apparatus.

PEKING TELEPHONE SYSTEM.—The Board of Posts and Communications have advertised for tenders for the installation of a new telephone system in the capital to supplant the old one which has given very poor satisfaction.

CHINESE TELEGRAPH SUPPLIES.—The Peking government has purchased a large quantity of telegraph wires and posts to be used in constructing a line connecting Peking and Paoting. The work of installation is now under way.

CHINESE POSTS AND TELEGRAPH COLLEGE.—The course in the college will cover three years and the student may qualify on certificates from the Shanghai school or from the provincial schools with a knowledge of English as one of the requirements.

SIDNEY LIGHTING.—The municipality has expended the sum of £419,000 in installing a complete system of electric lighting and it is estimated that it will cost £200,000 to give a complete and effective service. Expert opinion is being secured before the final plans are accepted.

TASMANIA ELECTRIC RAILWAYS.—Arrangements have been made by the City Council of Launceston with Messrs J. G. White & Co. for the installation of a system of electric tramways in the municipality, the current to be generated at a station on the Esk River and equal to about 1,380 h. p.

MANCHURIAN TELEGRAPH LINES.—The Chinese government has undertaken to establish telegraph lines connecting Antung, Newchwang, Liaoyang, Mukden, Tiebling, Kwangchentze, and the railway zone to be placed at the disposal of the Japanese for 15 years in return for a royalty.

JAPANESE TELEPHONE COMMUNICATION.—The government has now invested in these lines the sum of 20,000,000 yen and represents about 22,000 miles of line; 78 exchanges ordinary, and 153 special; 539 call offices and 233 automatic telephone boxes. There are estimated about 60,000 subscribers.

SIBERIAN MOTOR TRANSPORTATION.—The adaptability of the motor appeals to the Russian government and several roads are being built in the Trans-Baikalia and Upper Lina regions so that motor cars may be used not only in carrying Mongolia products out of the country but to transport Russian colonists to the Russian frontier.

MOTOR CAR IN MONGOLIA.—Kalgan and Urga will soon be connected by a substantial roadway over which a motor car service will be established for the purpose of relieving the congestion of traffic and develop that region. This road when completed will be 125 miles in length and it is expected that a large amount of traffic will thus be secured by the Pekin-Kalgan line.

FUKUOKA ELECTRIC RAILWAY.—The municipality of Fukuoka has decided to raise a loan of half a million yen for the purpose of improving the streets and a company has been formed for the purpose of constructing an electric line in the city and to add branch lines connecting Hakozaki and Hiruno and also with Hakata. The railway enterprise proper is being promoted by Messrs. Fukuzawa, Matsukata, Kawasaki and other capitalists.

KWANTUNG-CHEFOO CABLE.—The agreement between the Chinese and Japanese governments in regard to the control of this line provides that the Chinese shall assume control of the line from a point 7 miles from Chefoo and the Japanese from that point to the peninsula of Kwangtung. The Chinese also contracted to construct a line at Chefoo connecting the end of the cable with the Japanese post office at that point. This is the agreement providing for the transfer of the lines of telegraph built in Manchuria by Japan to the Chinese government outside the Manchuria Railway zone.

ELECTRIC LIGHTING IN KIRIN AND MUKDEN.—The firm of Messrs Siemens, Schuckert Werke of Shanghai has installed an electric lighting plant at Kirin and has the contract for the installation of a large plant at Mukden. The Kirin installation consists of two boilers by Borsig, Tegel, Berlin, supplying steam at 150 lb. pressure to two high-speed compound engines built by W. H. Allen and Sons, Bedford. The engines are coupled direct to Siemens 165 KVA alternators supplying 3-phase current at 5,000 volts with a periodicity of 50, which is transformed down to 220 volts for consumers. The installation at Mukden will consist of one 350 B. H. P. Belliss engine and one 250 KVA Siemens Schuckert dynamo for the present.

SOOCHOW ELECTRIC LIGHT WORKS.—This system which was recently completed has a capacity of 6,000 lamps of which over half is now being utilized while the demand is increasing. The installation was made by Messrs. Siemens Shuckart Werke. In this plant there are three Krupp Lancashire boilers, 7ft. 3in. in diameter by 31ft. long, with dished ends and corrugated flues, supplying steam at 150 lb to two open type Schickau engines running at a speed of 250 revolutions per minute. These engines have 14in. and 23in. cylinders with a stroke of 14in., and are arranged with a jet condenser and air pump worked from the low pressure crosshead. The engines are coupled direct to Siemens 175 Kva alternators, generating 3-phase current at 2,200 volts, the area of distribution being less than in Kirin. Current is transformed down for consumers to 220 volts.

RAILWAYS AND RAILWAY SUPPLIES

ANTUNG-MUKDEN LINE.—The survey of this line which began in January is still in progress.

NEW SOUTH MANCHURIA RAILWAY HEADQUARTERS.—This company has moved into its new headquarters at Dairen.

KANSI RAILWAY SLEEPERS.—The Mitsu Bussan Kaisha has secured the contract for the delivery of sleepers for the construction of the Kansi railway.

KUACHOU-LUCHOUFU RAILWAY.—It has been decided to construct the section of this projected road between Chingkiang and Luchou as the initial work on this line.

SOUTH MANCHURIA RAILWAY.—The passenger and freight receipts for the month of January, 1909, amounted to yen 1,496,614, an increase of yen 627,536 over the corresponding month, 1908.

THE CHANGCHUN JUNCTION.—The new arrangement for a junction of the Chinese Eastern Railway and the South Manchuria Railway is now in effect and the temporary station at Kwanchengtzu abolished.

SOKAI RAILWAY CONCESSION.—The Railway Board has sanctioned the construction of a line from the railway station in Yokohama along Tokyo Bay for a distance of 33 miles to Zushu. The capital of this company is placed at yen 1,800,000.

EAST ASIATIC COMMERCIAL INTELLIGENCE INSTITUTE.—The South Manchuria Railway has established a bureau of information at Tokyo for the purpose of supplying available information in regard to trade, industry, railway and shipping in Eastern Asia.

CHEFOO-WEIHSIEN RAILWAY.—This company has purchased its supply of rails from the Japanese, according to the *Peking and Tientsin Times* and the price is said to be very low. The materials referred to were captured from the Russians at Port Arthur.

YOKOHAMA RAILWAY LOAN.—This company has decided to raise a loan of yen 2,000,000 for the purpose of defraying the expenses of constructing a branch from the Kanagawa station to the reclaimed area in Kanagawa and for the redemption of loans outstanding.

CHINESE EASTERN RAILWAY.—An agreement has been reached by the Russian and Chinese governments for the construction of a light railway from Hanhin to Hsinfu and Pai Chuen in order to provide transportation for the products of the region tapped to Russian territory.

INDIAN RAILWAY CONTRACTS.—Contracts for Jarrah timber sleepers for the North-Western Railway have been placed as follows: Messrs. Shaw Wallace, Karachi, 150,000 sleepers; Messrs. Millar, Karri and Co., Calcutta, 100,000; Messrs. Bartram and Son, Melbourne, 50,000.

THE KASHING RAILWAY.—The road bed has been completed between Hangchow and Kashing, but the ballasting is not finished. It was expected to run through trains over the road in February. The Kashan section is studded with bridges, eleven being completed and 16 more projected and under way.

TIENTSIN GOVERNMENT RAILWAY SHOPS.—The Ministry of Posts and Communications have decided to install a large plant at Tientsin for the purpose of manufacturing all kinds of materials for railway construction so as to meet the demand locally. The plant will be started early in the Spring.

PROPOSED KIRIN-KAI-LUNG CHENG-ANTUNG RAILWAY.—Capitalists of Kirin, who were anxious to secure control of the Kirin railway, finding that the Japanese would not consider a proposal to redeem, have decided to construct a line from Kirin to Kai-lung Cheng and later continue it to Antung with the funds.

BURMA RAILWAYS.—Traffic earnings for the week ending 23rd January 1909, R4,27,248; for the corresponding week of last year, R4,97,460; decrease for the week, R70,212; total earnings for half-year R13,-67,535; total earnings for the corresponding half of last year, R16,33,447; decrease for the half-year, R2,65,912.

TIENTSIN-PUKOW CONSTRUCTION.—The work on the northern end is reported to be progressing rapidly. The grading is reported finished generally to Tsinanfu. Several brick yards are being established to supply material in the absence of a satisfactory quantity of stone. The laying of rails and ballasting will commence early in the Spring.

SHANGTUNG COAL RAILWAY.—The material for the construction of the line from Taierhechwang to the coal mines north of Yi Hsien has been received and it is expected to complete the line to the latter city by next December. The mines are 25 li North of Yi Hsien and in all will be about 85 li in length. It is the purpose of the company to extend the line to connect with the Tientsin-Pukow where the main line crosses the canal, north of Han Chwang.

YUNNAN RAILWAY LOAN.—The loan of £2,000,000 authorized by the French government for the purpose of meeting the expenses of construction will cover the estimates in the budget for the year and from estimates submitted the cost of the entire construction to Yunnanfu will reach the neighborhood of £7,000,000, over double the original amount suggested. The road to Mengtsze from Laokai is expected completed soon and the entire construction to Yunnanfu in 1910. The section to Mengtsze is considered the most difficult part of the construction.

NEW INDIAN PROJECTS.—The Railway Board has sanctioned a survey being made by the Agency of the Oudh and Rohilkhand Railway Administration for a line of railway on the 5 feet 6 inch gauge from Sitapur to Burhwal combined with a short connection between Burhwal and Daryabad, a total distance of about 78 miles. This survey will be known as the Sitapur-Burhwal-Daryabad Railway Survey.

The Railway Board has sanctioned a survey being made by the agency of the Burma Railways Company for a line of railway on the metre gauge from Myogwin to Kamanksu, a distance of 23 miles. This survey will be known as the Myogwin-Kamanksu Railway Survey.

The Railway Board has sanctioned a survey being made by the agency of the Oudh and Rohilkhand Railway for a line of Railway on the 5 feet 6 inch gauge from Sitapur to Burhwal, combined with a short connection between Burhwal and Daryabad, a total distance of about 78 miles. This survey will be known as the Sitapur-Burhwal Daryabad Railway Survey.—*Railways.*

PUBLIC WORKS, DOCKS, WHARVES, ETC.

NIKOLAEVSK NAVAL STATION.—The Russian government has decided to establish a station at this port for the purpose of protecting the Amur territory.

GRAND CANAL IMPROVEMENT.—The Viceroy of Chihli has authorised the compilation of estimates and the drafting of plans for the purpose of deepening the canal at Ching Ting.

CANTON'S NEW BUND.—The construction of this important work is now almost completed and the improvement is one of the most desirable features of development in this port.

PUKOW IMPROVEMENTS.—The government offices, wharves, and other public works completed at this place have been taken over by the Taotai. H. E. Tuan Fang is responsible for these necessary additions.

CHINESE NAVAL STATIONS.—General Li, who was commissioned to investigate and report on the most desirable location for naval stations, has reported favorably on Chefoo and Taku with the former more desirable.

KNOCHOW HARBOR WORKS.—The opening of this port has been abandoned for the present for the reason that the cost of constructing the necessary harbor works is said to be too great to be undertaken at present.

NEW BANGKOK DOCK.—A company has been formed with a capital of ticals 175,000 under the name of the Samsen Dock and Engineering Company, Limited, and will carry on a general shipbuilding and engineering works.

CATHAY HARBOR WORKS.—The fund raised by the Chinese of Cathay and Heungshan province for the purpose of constructing extensive harbor works at Cathay to eclipse Macao is reported to have reached the sum of $10,000,000.

YELLOW RIVER CONSERVANCY.—The Governor of Shantung recently submitted a comprehensive scheme for the conserving of the river and now it has been approved by the Board of Finance and work will be started at an early date.

MILITARY CONSTRUCTION IN THE PHILIPPINES.—The appropriation bill for the United States Army provided $350,000 for the construction of barracks in the Philippines and $250,000 for the construction of fortifications on the island of Corregidor.

PROPOSED HARBOR AT LIENSHANWAN.—Work will commence on an extensive harbor at this port next Spring. The scheme was drawn up by a British engineer and the report is favorable for this point as a commercial port to tap the trade of the West Liao region.

PORT FOR IPOH.—The Perak Chamber of Mines has asked the government for a port for Ipoh and Lumut in the Dindings was recommended as the most desirable location. At the present time Ipoh has to depend on Penang and Singapore for an outlet to the sea.

LIAO-HO CONSERVANCY SCHEME.—The consular body and the Chamber of Commerce of Newchwang has petitioned the Viceroy of Manchuria through the German Consulate for permission to organize a company for the purpose of conserving the Liao-Ho and to inaugurate a launch service.

NEWCASTLE (N. S. W.) HARBOR WORKS.—The building of two additional basins and an increase in the wharfage of this important harbor has been provided for to meet the large increase in the shipping of the port. It is also proposed to extend the northern breakwater at an expenditure of half a million. The output of coal handled at this port has increased during the decade to over 70 per cent. and the increase in facilities has not been by any means proportionate.

BARREN JACK RESERVOIR.—*Machinery and Hardware* announces that the contract for the construction of the wall of the dam was secured by Messrs. Lane & Peters and the price is £217,000. The work will take about four and a half years to complete. Three shifts of men, or 600 in all, will be employed continuously. The estimated cost of the whole of the work in connection with the reservoir is £810,000, and of the entire scheme including land resumptions and the railway, £1,800,000. The contractors' price does not include the cost of the cement, which is provided by the Government.

Bangkok Harbor Improvement.—A movement is on foot to improve and deepen the entrance to Bangkok Harbor. It is advanced that but for the bar it would prove one of the most desirable harbors in Eastern Asia.

Hai-Ho Conservancy Activity.—The Commission in charge of this work has advertised for delivery at Tientsin of one 250 meter dredger; one 500 cubic meter dredger; machinery for a dredged-spoil pumping plant; five hopper barges; and one steel tug boat. The tenders will be received up to and including June 1st, 1909. The commission has also advertised for tenders for two to four light draft tugs which will be received up to and including May 1st, 1909.

Bangkok Memorial Bridge.—The new bridge which replaced the old Taphan Dam in Bangkok was opened to the public last month. The old bridge was dismantled last November and the work of construction was carried out by Messrs. Howarth Erskine, Ltd. The Bangkok Dock Co. supplied the steel. According to the *Bangkok Times*, the new bridge is carried on steel girders, connected by vault plates. It carries on either side an ornamental superstructure of pillars containing a deep recess providing both shelter and seats for rest. On the wall of each recess is a drinking fountain, above which is placed in the one recess a large medallion of the late Prince Siriwongse, and in the other a large medallion of his mother, the late Princess Bhanurangsi. On each medallion is an inscription giving the names and titles of the person represented. In both cases good likenesses have been obtained, the medallions being cast by Navy officials. Above the outlet pipe of the one fountain is placed a design of the head of a tiger, and above the other the head of an ox, the Princess having been born in the year of the tiger and the Prince in the year of the ox. Both medallions are surmounted by a rising sun, the crest of His Royal Highness, who has erected the bridge as a memorial to his wife and son. The pillars are of concrete with brick abutments.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

Torpedoer for Siam.—The Kawasaki Dockyard is constructing another torpedo boat for the Siamese Government.

Dalny-Shanghai Line.—The South Manchuria Railway intends increasing the number of vessels plying between these two points.

Nippon Yusen Kaisha New Steamer.—The *Kitano Maru* which was launched in January is destined for the European run permanently.

Manchurian Naval Squadron.—Two steel gunboats of six feet draft and 11 knots and eight small craft to be used in patroling Manchurian waters have been ordered by the Viceroy from the Government Dockyards at Tientsin and Shanghai.

Chino-Siamese Mail Boat Co., Ltd.—This company has been formed with a capital of ticals 3,000,000 with headquarters at Bangkok and will run a line of steamers between Siam, Singapore, Hongkong, China and extend it from time to time to other foreign ports.

Japanese Sealing.—The total catch of marine animals reached over 11,000 of fur-seals and about 1,000 sea-otters, which are valued at more than 5,000,000 yen according to the current price in the London market. They are salted and now exported mostly to London through the merchants in Yokohama and Hakodate.

Revenue Cutter for Netherlands-India.—The Speurder, a steel screw revenue cutter built by Messrs. Riley, Hargreaves & Co., Ltd., made 10½ knots an hour on her trial trip at Batavia and has been taken over by the government. This vessel is equipped with triple expansion surface condensing engines and her dimensions are: 114 ft. over all; width 19 ft. and depth 10 ft.

Osaka Shosen Kaisha.—In May, this company will begin its regular monthly freight and later a fortnightly passenger and mail service across the Pacific making Tacoma and Hongkong the termini and calling at Shanghai, Moji, Kobe and Yokohama (with liberty to call at Manila, P. I., Keelung, Yokkaichi, Shimidzu, Victoria, B. C., etc.). Six new steamers of 12,000 tons now under construction will be added. This is in connection with the Chicago, Milwaukee & St. Paul whose extension to Tacoma will be completed by June.

MINES, MINERALS AND THE METAL TRADE

Niigata Oil Yield.—Approximately 72,000,000 gallons of crude oil represents the output of these wells.

Asbestos in Chungking.—Deposits of this mineral have been discovered in Sui-fu and East of Szechuan on the border of Hupei.

Tibet Gold.—The Imperial Agent at Lhassa has been instructed by Peking to prepare an exhaustive report on the gold deposits of Tibet.

Kulun Gold Mines.—The report of the Imperial Chinese Resident at this point contains the information that the gold mines there have been worked most successfully during the year.

Turkestan Copper Mines.—Peking has directed the Governor of Chinese Turkestan to investigate and report on the copper deposits of Kucha and Paichang with a view to developing them along modern lines.

Japanese Oil Refining Industry.—The Rising Sun Oil Co. has prepared plans for the establishment of a large oil refinery at Hakata for the purpose of supplying Borneo oil and American oil in Japan, Korea and China.

Far Eastern Coal Trade.—Of a total of 3,900,000 tons of coal consumed in the Far East last year, Japan supplied about 2,500,000 tons, Australia 600,000 tons approximately and the balance was supplied by China and scattering.

Shensi Oil Fields.—The government proposes to develop the oil deposits of Shensi if Chinese capital is not available and it is the intention to compete for the trade against the foreign companies, believing that the Taels 20,000,000 sent out of the country for this product might be spent at home.

Saghalien Oil Wells.—A company comprising Russians, Germans and Chinese has been organized for the purpose of exploiting the oil deposits of Saghalien at a point some distance north of the city of Nikolayewsk. German machinery has been purchased and work will commence as soon as weather permits.

Mining in Asia.—The *Mining Journal* gives the following review of mining in Asia for 1908:

There were few new companies for Asia last year, but as a few of these had large capitals, the total capital was above that of the two years preceding.

	Companies.	Nom. Capital
1906	42	£3,003,500
1907	32	2,963,800
1908	18	3,459,500

Siberian mining claimed more than two-thirds of the capital of 1908. It seems that at present Siberia is the last new place for mining enterprise. It is no new field, but whether it is wise for Britain to take over old worked Russian mines and pay large sums for them remains to be proved.

The Siberian companies of last year included the Lena Goldfields, with £1,405,000 capital, and the Kyshtim Corporation, £1,000,000, both prospectus companies; and also the New Central Siberia, with the smaller capital of £150,000. India, a few fairly large concerns: the Central Provinces Prospecting Syndicate, £300,000; the Dharwar Reefs Gold, a reconstruction of the Dharwar Reefs, £235,000; and the North Anantapur Gold Mines, £100,000. In the gold returns from the Kolar district, Mysore, there was a slight increase:—

1908	534,415 ozs.
1907	531,829 ozs.
Increase	2,586 ozs.

FINANCIAL AND MISCELLANEOUS

Straits Mortgage Trust Co., Ltd.—This new flotation was announced last month with a capital of £200,000.

Saigon Rice Trade.—The total export for the year 1908 was 800,000 tons, a falling off of 200,000 tons compared with the previous year.

Murorian Lumber Export.—The value of timber exported from Muroran, Hokkaido, during last year amounted to Y-906,644, of which railway sleepers represented Y-658,404.

Formosan Camphor Export.—The correspondent of the *South China Morning Post* states that the export for January was kin 413,000 of which 168,000 was shipped to America. (Kin equals 1.6 lbs. troy.)

Cotton Growing in Indo-Chine.—The encouragement given the cotton growing industry in Indo-Chine has resulted in the exportation of 5,500 tons last year. More land is being planted in cotton each year.

Japan Postal Savings Bank.—The total amount of the postal savings deposits throughout Japan including Formosa and Korea during December was 1,448,567 yen, the total since January last year being 20,129,559 yen.

Russian University for China.—Russia is planning to establish a large university in Kirin and another in Helungkiang for the purpose of teaching the Chinese the Russian language. They will have accommodation for over 500 students.

Bank for Manchuria.—The Fengtien Chamber of Commerce, with the assistance of Chinese capitalists, has floated a Bank with a capital of $15,000,000. The head office will be located at Mukden and branches established in different points of the three provinces.

Chinese Yarn Export.—The exports of Japanese knitting are increasing every year. India taking more than two-thirds of the whole exports. In 1905 exports to India and other countries represented Y-1,681,654 in value; in 1906, Y-2,563,972; and in 1907 Y-3,709,928.

Chinese Commercial Bank.—The progress made by the promotor of this enterprise which is to represent a capital of Taels 10,000,000, is reported to be most satisfactory and that Taels 8,000,000 have already been subscribed by Chinese in the Straits, the Philippines and Netherlands India.

New Rubber Companies.—The following companies have been registered in London recently for the purpose of engaging in the rubber growing industry in Malaya: Rubber Corporation of Johore, Limited, capital £200,000; Bukit Cloh Rubber Co., Limited, capital £40,000, to take over estate of the Bharu Selangor Syndicate, Ltd.,; Kampong Kuantan Rubber Co., Ltd., capital £40,000; Edinburgh Rubber Estate, Ltd., Selangor, capital £40,000.

Japanese Government Monopolies.—The estimate of the Government income through the various monopolies during the coming fiscal year—from April 1st, 1909, to March 31st, 1910,—was as follows:—

	Yen
Tobacco	73,149,648
Salt	24,556,613
Camphor and Camphor Oil	1,266,245
Tobacco Extract	830

The income from tobacco shows an increase of *yen* 2,248,411 over that of the previous year; that from salt, *yen* 2,672,490; and camphor and camphor oil, *yen* 188,840.

During 1908, the transactions in salt were:—

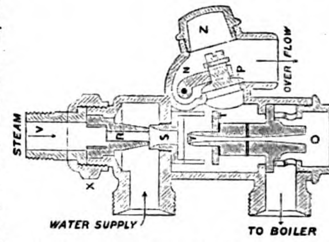
	Kin.	Yen.
Japanese	966,817,000	22,827,735.40
Formosan	57,185,000	873,180.10
Kwantung	40,000,000	717,982.30
Foreign	4,000,000	137,788.08

—*Japan Times.*

AUTOMATIC INJECTORS AND EJECTORS

These two articles are manufactured by the Penberthy Injector Company, of Detroit, Michigan, U. S. A., who have, during the last 22 years, built up a business for the Penberthy Automatic Injector.

These injectors, which are automatic and restarting, have attained a world-wide reputation, owing to their simplicity of construction. They are in no way complicated, and the parts are "S" and "Y," which are interchangeable in 500,000 of the injectors last manufactured, rendering it possible for any engineer to simply order the different parts from the local agent, and he can place them in the injector himself, rendering it equal to a new injector. The steam jet "R" has very little wear, the most wear coming on the jet "Y", so that with extra parts and ordinary care of the body itself, an injector should last for years.



Sectional view of interior of Injector

When these injectors are connected to a boiler above a pressure of 75 pounds, the valve in the water supply pipe being wide open, it is only necessary to open the steam valve to start the injector, and to close the same to stop the feed to the boiler. Below this pressure, on a short lift, the valve in the water supply pipe need only be regulated to convey the proper amount of water to the injector, in proportion to the steam carried below this pressure. The working range is from 20 to 25 pounds low pressure, to 160 to 170 pounds high pressure, according to conditions. They lift vertically from three to twenty-two feet, according to steam pressures, and handle a hot water supply anywhere from 33 to 125 degrees Fahr.

Where steam pumps have been heretofore used, the automatic injector has almost replaced them, and even where pumps are now used, an injector is usually added to the equipment as an auxiliary feed. When it is taken into consideration that these injectors, taking water from a supply at say a temperature of 75 degrees Fahr., will deliver this water to the boiler at a temperature of 150 to 200 degrees, according to conditions, their economy is readily realized. They cost not over one-quarter the price of a pump to do the same work, and take up little or no space to speak of.

The XL Ejector, is another product of manufacture, used for an entirely different purpose. While it will take water and other liquids at depth of 20 to 25 feet below the ejector, and elevate the same from 10 to 100 feet above the ejector, according to the vertical lift, its many uses can be seen at once. These ejectors are largely used on boats, to get rid of any water in the bottom of the vessel, and in mines, tanneries, creameries, chemical works, and other factories where liquids of any kind are to be raised or transferred from one level to another. These ejectors differ from the injector, inasmuch as they have not the forcing qualities necessary to deliver water to a boiler against its own pressure. They are also largely used where it is necessary to take liquids at one temperature and deliver them at another, as in the process of lifting and elevating, the temperature of the water is increased from 15 to 25 degrees Fahr.

This company has agents all over the world, and in order that those interested may get further information, reference to which is made in the advertising section.

PHILIPPINE MINING NOTES

The San Mauricio Mining Co. is doing preliminary work preparatory to installing a 20-stamp mill on its property at Mambulao. This mine has been cleared out and retimbered and shows about 1,500 feet of workings. The Tumbago Mine is also preparing for active operations and will probably be in a position to start its 5-stamp Huntington mill in July. These two properties are situated in the Camarines.

The Philippine Dredging Co. is installing a dredge above the Paracale Gold Dredging Co.

The Delabaybay Dredging Co. received 2080 pieces of freight on the Prinz Waldemar and will assemble the dredge at an early date for operation in the Camarines.

The indications are that the year 1909 will be marked by great activity in placer mining in the Camarines.

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*LONDON, ENGLAND, METAL MARKET

February 1909.

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	61 10 0	..	62 10 0
*Best Selected	61 10 0	..	62 10 0
*Electrolytic	64 0 0	..	65 0 0
*Sheets and sheathing	72 0 0	..	—
*Flat bottoms	75 0 0	..	—
STANDARD †Cash	58 2 6	..	58 5 0
STANDARD †Three Months	59 0 0	..	59 2 6
*Copper tubes, seamless per lb.	0 0 9	..	—
*Lake	65 0 0	..	66 0 0

* Less 3½ per cent. † Net.

ALLOYS.

Brass: Wire	0 0 6½	..	—
,, Tubes (solid drawn)	0 0 7½	..	—
,, Sheets	0 0 7	..	—

TIN.

English ingots, f. o. b.	124 10 0	..	125 10 0
,, bars	125 10 0	..	126 10 0
,, refined	126 10 0	..	127 10 0
Straits... Cash	124 10 0	..	124 12 6
Straits... Three months	126 7 6	..	126 10 0
Australian spot	—	..	—
Banka (in Holland) Cash	126 15 0	..	—
Banka (in Holland) Three months	127 3 9	..	—

LEAD.

Spanish or soft foreign	12 17 6	..	13 0 0
English pig, common	13 2 6	..	13 5 0
,, L. B.	13 15 0	..	—
,, sheet and bar lead	14 5 0	..	—
,, pipe	14 15 0	..	—
,, red	16 5 0	..	—
,, white	18 0 0	..	—
,, patent shot	16 5 0	..	—

SPELTER.

Silesian ordinary brands	21 0 0	..	21 3 9
,, special brands	21 15 0	..	22 0 0
English Swansea	21 12 0	..	22 2 6
Sheet zinc	25 0 0	..	—

ANTIMONY.

Antimony	30 0 0	..	31 0 0
,, Crude	13 10 0	..	14 0 0
,, Ore (basis 50%)	8 0 0	..	8 10 0

QUICKSILVER.

Flasks, 75 lbs. warrants	8 10 0	.	—

MANGANESE.

Ore, c.i.f., U. K. ports.	Per unit.*		Per unit.*
1st quality, 50 per cent. and upwards	0 0 9½	..	—
2nd quality, 47 per cent. to 50 per cent.	0 0 8½	..	—
3rd quality, 40 per cent. to 47 per cent.	0 0 7½	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	170 0 0	..	175 0 0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

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* *Mining Journal*

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal.

		U. S. Currency.
Abrasives.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb.	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs.	1.60-2.00
Acids.—		
Hydrochloric 20°	lb.	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb.	1.10-1 75
Antimony, needle	"	.05-.06
Arsenic, white	"	.05-.055
red	"	.07½-.70
Asphaltum.—		
Trinidad	ton	28 00-30.00
California	"	21.00-27.00
Bleaching Powder, 35%	100 lbs.	1.25-1 40
Blue Vitriol	lb.	5 00
Bone Ash	"	.02¾-.04
Borax	"	.04½-.05½
*Caps detonating	M	-7.50
Cement.—		
Portland, American	500 lbs. bbl.	1.55-1 60
Foreign	" " "	2 25-2 90
Rosendale	300 " "	.85
*Green Island	375 " "	2.75
*Alsen		3.00
Clay, China.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
***Coals.—**		
Batan, at Mines	ton	8.00
Australian	"	5 50
Copper	lb.	.13-.14
*Dynamite 40%	"	.20
Feldspar ground best	sh. ton	10 50-15.00
Fire Brick, American	M	30.00-40 00
Imported	"	30.00-45.00
Fire clay, St. Louis Mill	ton	2 50
Fuse—Blasting	1,000 ft.	7 50
Graphite—Ceylon, lump	lb.	.04-.10
Large lump	lb.	.07-.10
Gypsum—Fertilizer	sh. ton	7 00
Powdered	sh. ton	12.00-20.00
Lead	lb.	-.04
Magnesite-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
Manganese. Ore. 80-85%	sh. ton	20 00-50 00
Mercury, export flask	75 lbs.	36 00-39 00
Paints and Colors.—		
Litharge American P'w'd	lb.	.06½-.06¾
Ochre, Am. Com	sh. ton	8 50-9 00
Paris green pure, bulk	lb.	.26
Turpentine, spirits, bbl	gal.	.44½-.4
White lead, Am. dry	lb.	.05¾-.0
Am. in oil	"	.06½-.06
Zinc, white, Am. extra dry	"	.05¾-.05
Phosphates, Acid	per unit	.65-.7
Florida hard rock	lg. ton	10.25-10 5
Land pebble 68%	"	5 25-5 5
Potassium Cyanide (98-99%)	lb.	.18-.19
Platinum	oz.	28 00
Platinum, Scrap	oz.	17 00
Spelter	lb.	.045-.046
Nickel, Small lots	lb.	.50-.60
*Powder, black blasting A	lb.	.15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½-.13
Imported, arsenical	"	.12-.12½
Saltpeter crude	100 lbs.	4.50-5 00
Silica, Lump quartz	lg. ton	5 00-6 00
Ground quartz ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 7
Silver	oz.	.55½-.55
Sodium cyanide (100% KCN)	lb.	.1
*Steel, octagon drill	lb.	
Sulphur, Louisiana prime	lg. ton	22
Roll	100 lbs.	1 85-2.
Flowers sublimed	"	2 20-2.
Talc—Domestic	sh. ton	15 00-25.
Italian, best	"	35 00-40.
Tin	lb.	.9½
Zinc, Sheet	100 lb.	7.
Dust	lb.	.05¾-.06

*Manila quotation.

HEMP STATISTICS, 28th FEBRUARY, 1909.

(Courtesy of C. S. Nicholson, *Secretary, Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st Aug. 1908		480,986 *Bales*
Arrivals of hemp at Cebu up 31st Aug. 1908		174,438 *Bales*
		655,424 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales*
Total		784,783 *Bales*
Export to all ports to date 31-8-08	620,949 *Bales.*	
Local consumption estimated at	3,200 "	624,149 *Bales*
Total stocks at Manila and Cebu on 1st September, 1908		160,634 *Bales*

EXPORT OF HEMP, FEBRUARY, 1908.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific & California	East Continent	Australia	Other Pts.	Total Bales
1909.		33,139	11,561	13,688	6,980	8,135		1,644	75,147
Feb. 2	Changhsa						440		440
" 3	Tean	4,478	400			182		20	5,080
" "	Prinz Sigismund.						440		440
" 4	Manila					9			9
" 2	Benledi.......Cebu		2,461						2,461
" 6	Yuensang	2,575				550		574	3,699
" "	Atholl			5,850					5,850
" 9	Kenley			10,129					10,129
" 11	Trafalgar			27,757					27,757
" 9	Suveric				1,920				1,920
" 7	Aldenham							218	218
" 9	Taming							200	200
" 12	Nikko Maru							201	201
" 16	Tean							150	150
" 11	Seminole				4,042				4,042
" 19	Yuensang	2,700				1,250		100	4,050
" "	Oanfa				1,000				1,000
" "	Zafiro							775	775
" 10	Kaifong.......Cebu							81	81
" 19	Sungkiang......do	900				600			1,500
" "	Indrapura......do			9,280					9,280
" 23	Alicante		1,600			36			1,636
" 22	Yawata Maru						1,140		1,140
" "	Rubi	250							250
		44,042	16,022	66,704	13,942	10,762	2,020	3,963	157,455

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for March, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14 500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5[- @ ex 1[8 ¾=$26.024, making in all $47.966 for 190....	5½	$900 buyers £84-10[-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3|6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$187½ buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7[6 making 15[- for 1907	5½	Tls. 97½ buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$825 sa. & seller
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-08	$12 and bonus $3 for 1906	7½	$200
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668	$375,314	31-12-08	$6 and bonus $2 for 1907	8	$99 ex div. bu y
Hongkong Fire Ins. Co , Ld.	1868	$2,000,000	8,000	$250	$50	f $13,802 $1,323,941	$428,047	31-12-07	$27 for 1906	8½	$332½ sellers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	$7,000	$1,035	31-12-07	$1 for 1906	....	$12 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7½	$34 buyers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $ 79,428 $ 25,344	$20,279	30-12-08	Final of $1¼ making in all $2½ for 1908	8¾	$29¼ buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,7	31-12-07	6|- for 1907 on pref. shares only at ex. 1[9 11[16, $3.154	5½	$39½ $19½
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½ 7	Tls. 46 buyers Tls. 52 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a|c 1908	6	52|- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 / 50 cts. for year ended 30-4-08	4 3½	$39½ $19½
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 426,479 e Tls. 70,000 i Tls. 81,200 g Tls. 12,000	Tls. 6,869	31-12-07	Final of Tls. 2½ making Tls. 5 for 1907	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o 32,538 e $450,000 r $56,848	Dr. $279,371	31-12-07	$8 for year ending 31-12-06	....	$142½ buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,132	31-12-07	$3 for 1897	....	$17
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 110 sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1|6 (Coupon No. 11) for year ending 29-2-08	7	Tls. 18½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1|-=48 cents	....	$8¾ sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	7¾	$47 sales & b.
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	9	$87
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	5½	Tls. 91 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 75,000 e Tls. 125,000	Tls. 22,626	31-12-07	Interim of Tls. 4 for % 1908	5½	Tls. 177 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	5¾	Tls. 104 sellers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2¼ for year ending 30-6-07	....	$20
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$9,178	31-12-06	$1.80 for 1906	....	$16¼ buyers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $22,000	$14,639	31-12-08	Interim of $3 for % 1908	7	$90 sellers
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	....	$96 buyers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7	$8.65 sales
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30½
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Final ef Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	7	Tls. 115 sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4¾	Tls. 104 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	5½	$9 sales

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE.	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 84 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,823	31-12-08	Tls. 4 for 1908	....	Tls. 88
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 28,257	Tls. 50,669	31-12-08	Tls. 50 for 1906	....	Tls. 310 sales
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£648	31-12-07	1s. 10½d. for 1907=$1.037	10	$10 sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	10	$12 buyers
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$4¾ sales
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	8¾	$9.20 buyers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*i* 10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	5¾	$14 sa. & buer
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Interim of 40 cents for % 1908	10½	$9.60 buyers
H. Price & Co., Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10	$23 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	$20.000	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	6¼	$18½ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	9¼	$205 s. ex div.
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8¼	$24 ex div.
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / *i* Tls. 27,603	Tls. 17,127	31-10-06	4th quarterly div. of Tls. 10 & bonus of Tls. 10 making Tls. 50 to date	6¼	Tls. 810 buyers
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $1	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 / 4	$14 / $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	*d* Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¼	Tls. 121 sellers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / *w* Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	12	Tls. 115 sellers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 437½ sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7¼	$5½ sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / *e* Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	5	$10.10 buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6¼	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / *e* $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6¾	$9 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$2½

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104⅝
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1 1915	104⅝
Do.	Feb. 1, 1906	....	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104⅝
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104½
Do.	Jan. 2, 1907	....	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104⅝
*Philippine Railway First Mortage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Final of Gold cents 50 making gold $1 for year ended 30th June 1907	Sept. 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 190
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros, Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co, Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	May 30, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1908	Feb. 8, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08	Dec. 1908
E. E. Porter & Co, Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490 500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100 000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50 000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,0 0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,890	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, March, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	......	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	....	6.00	6.00
1907	$300,000	225,000	22,500y	10	10	......		Bruang Ltd.	5.50	5.75	5.75
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	....	10.00	10.00
1903	£400,000	350,000	350,000a	1	1	......		Duff Development Co., Ltd.	5.00	5.15	5.00
1907	$400,000	375,000	37,500b	10	10	......		Kanaboi, Ltd.	1.25	1.75	1.25
1901	£60,000	60,000	60,000	1	1	......	2/- interim for 1908	Kinta Tin Mines, Ltd.	9.75	10.00	9.75
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	3.75	4.00	3.75
1905	$150,000	99,000	9,900c	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	4.00	4.00
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	....	10.50	10.50
1906	£30,000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	....	7/6	7/6
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	....	2.00	2.00
1906	£250,000	179,500	500,000h	5/-	5/-	......		Pahang Consolidated Co., Ltd.	....	21/6	21/6
			54,500	1	1	......		" " " 7% Pref.	....	....	nominal.
1907	£100,000	80,000	80,000i*	1	1	......		Pengkalen, Ltd.	6.25	6.50	6.25
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	4.00	4.25	4.00
1907	$450,000	300,000	30,000g*	10	10	......		Rahman Hydraulic Tin Mines, Ltd.	....	8.00	8.00
1905	£27,000	21,750	21,750e	1	1	......	1/- interim during 1907	Rambutan, Ltd.	....	6.75	6.75
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	7.00	7.10	7.00
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	6.65	6.75	6.75
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd.	2.50	3.00	2.50
1898	Gs2.500,000	2,500,000	25,000	100	100	......	71% for year ending 31-12-07	Redjang Lebong Mining Co., Ltd.	....	....	1030.00
1900	$110,000	110,000	22,000	5	5	......	10% for 1907	Royal Johore Tin Mining Co., Ltd.	1.50	1.75	1.50
1907	$500,000	500,000	50,000	10	10	......		Salak South, Ltd.	....	6.75	6.75
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	2.75	3.25	2.75
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd.	....	5.75	5.75
1899	$230,000	230,000	23,000	10	10	......	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	4.75	5.00	5.00
1907	£90,000	70,000	70,000z	1	1	......		Tekka, Limited	9.75	10.00	9.75
1902	£160,000	149,185	149,185f	1	1	......	5/- during 1907.	Tronoh Mines, Ltd.	8.50	8.75	8.75
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1	......	10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.10.0	4.15.0	4. 10. 0.
			103,500	1	17/6	......		" " " *Contributory*	4.7.6	4.10.0	4. 7. 6
1905	$200,000	120,750	10,500f*	10	10	7,400	12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	27.00	30.00	27.00
			2,100h	10	7.50	......		" " " *Contributory*	23.00	....	23.00
1904	£30,000	22,750	22,750i	1	1	......		Batu Caves Rub. Co., Ltd.	3.5.0	3.15.0	3. 5. 0
1903	£70,000	66,700	66,700j	1	1	......	12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	5.5.0	5.10.0	5. 10. 0
1906	$150,000	125,000	12,500k	10	10	......		Castlewood Rubber Co., Ltd.	3.75	4.00	4.00
1904	£16,000	16,000	10,000	1	1	......	17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	6.0.0	6.10.0	6. 10. 0
			6,000	1	1	......	20% interim for 1908	" " " " 5% Pref.	....	....	7. 0. 0
1905	£75,000	58,500	55,000l	1	1	......	5% interim for 1908	Consolidated Malay Rub. Estates, Ltd.	3.0.0	3.5.0	3. 5. 0
1906	£310,000	259,530	181,454m	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.0.6	2.1.6	2. 0. 6
			123,546	1	12/6	......		" " " " *Contributory*	1.7.6	1.9.0	1. 7. 6
1905	£65,000	57,500	50,000	1	1	......		Kapar Para Rubber Estates, Co., Ltd.	2.5.0	2.10.0	2. 5. 0
			15,000	1	10/-	......		" " " " " "	....	....	1. 15. 0
1906	£180,000	180,000	180,000	1	1	......	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.8.6	1.10.0	1. 8. 6
1907	£320,000	219,000	184,000c*	1	1	......		Lanadron Rubber Estates, Ltd.	2.0.0	2.2.6	2. 0. 0
			70,000	1	10/-	......		" " " *Contributory*	1.0.9	1.1.3	1. 0. 9
1906	Gs 175,000	175,000	540	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	....	....	250.
			160	250	250	......		" " " " " *Deferred*	....	....	250.
1906	$250,000	230 950	23,095n	10	10	......		Ledbury Rubber Co., Ltd.	9.50	10.00	10.00
1895	£100,000	98,324 8/-	883,244d*	2/-	2/-	......	20% interim for 1908	Linggi Plantations Ltd., *Ordinary*	11/9	12/-	12/-
			10,000	1	1	......		" " " 7% Pref.	....	....	1. 0. 0
1906	£300,000	300,000	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	1.7.0	1.10.0	1. 7. 0
			185,000	1	1	......		" " *Ordinary*	1.4.0	1.5.0	1. 4. 0
1903	£30,000	22,500	22,500o	1	1	......	12½% interim for 1908	Pataling Rubber Estates Synd. Ltd.	7.2.6	7.10.0	7. 10. 0
1906	$250,000	225,000	22,500	10	10	......		Ragalla Rubber Co., Ltd. *Ordinary*	9.75	10.00	10.00
		25,000	2,500	10	10	......		" " " 8% *Preference*	10.00	....	10.00
1904	£20,000	10.035	2,588a*	1	1	......		Sagga Rubber Company Limited	2.0.0	....	2. 0. 0
			12,412	1	12/-	......		" " " "	....	....	....
1904	$100,000	99,000	990j*	100	100	......	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	300.00	310.00	300.00
1898	£30,000	30,000	300,000	2/-	2/-	......	25% interim for 1908	Selangor Rubber Co., Ltd.	18/6	19/6	18/6
1905	$500,000	500,000	5,000	100	100	......		Singapore Rubber Co. Ltd.	105.00	110.00	110.00
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd.	125.00	135.00	125.00
1905	$100,000	100 000	10,000	10	10	......	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	10.00	11.00	11.00
1906	£110,000	100,000	100,000k*	1	1	......		Sungei Kapar Rubber Co., Ltd.	2.5.3	2.10.0	2. 5. 3
1904	£50,000	45,710	41,920p	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	1.15.0	2.0.0	1. 15. 0
			7,580	1	10	......		" " " " "	....	....	1. 7. 6
1904	£60,000	50,600	506,000q	2/-	2/-	......	25% interim for 1908	Vallambrosa Rubber Co., Ltd.	15/-	15/6	15/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688b*	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025m*	100	100	......		Brunei Oil Royalty, Ltd.	....	100.00	100.00
1907	$1,500,000	1,099,672	27,083l* 118,406	10 10	10 7	......	5% interim for 1908	Eastern Smelting Co., Ltd.	6.75	6.90	6.75
1898	$225,000	225,000	4,500	50	50	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd.	147.50	150.00	150.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 14,500,000u 250,000v	£2-0-0 per share at exchange 1/9 7/8 for half year ending 30-6-08.	Hongkong & Shanghai Bank'g Corpt'n.	....	....	86. 5. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd.	....	100.00	100.00
			6,000	100	....	......	7% for year ending 31-10-07	" " 7% *Pref*	....	102.50	102.50
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-08	Maynard & Co., Ltd.	18.50	19.50	19.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	....	72.50	72.50
			2,750	100	100	......	7% for year ending 31/12/07	" " " " 7% *Pref.*	....	100.00	100.00
1903	$600,000	250,000	25,000r	10	10	......	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	7.25	7.50	7.50
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	...	50.00	50.00
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	3/6	3/9	3/6
1904	$160,000	112,000	1,120e*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	....	130.00
1890	$500,000	498,000	4,980h*	100	100	760,000w	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	190.00	195.00	190.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	48.00	48.25	48.00

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	1%	1% prem.
Riley, Hargreaves & Co., Ltd. 6% 284,000	....	1%	1% prem.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem. nom.
" " 5% 1,878,000	6%	....	6% prem.
" " 4½% 1,600,000	3%	5%	3% prem.
" " 4% 602,900	....	....	nominal.
Straits Engineering Syndicate, Ltd. 6% 45,000	..	par.	par.
Tanjong Pagar Dock Board 5% 1,050,000	par	....	par.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h { 100,000 " Ord.
h { 45,500 " Pref.
i 7,250 "
j 3,300 "
k 2,500 "
l 20,000 "
m 5,000 to be issued to employees

n 1,905 unissued.
o 7,500 "
p 500 to be issued to employess
q 94,000 "
r 35,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "

a* 5,000 unissued.
b* 916 "
c* 66,000 "
d* 16,756 "
e* 480 "
f* 7,400 "
g* 15,000 "
h* 20 "
i* 20,000 "
j* 10 "
k* 10,000 "
l* 4511 "
m* 475 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, FEBRUARY, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	95 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-07	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	65 Sales
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.00
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 99.00
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 91.20
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 91.20
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 92.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 91.40
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.20
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 97.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 96.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 96.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 97.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 150.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	4%	June and Dec.	,, 56.30
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 45.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 67.60
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 28.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 113.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 92.20
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 84.50
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 37.10
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 63.00
Nisshin Boseki Kabushiki Kaisha	50	12½	......	——	,, 8.90
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 25.00
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 28.55
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 75.70
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 51.00
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 10.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 78.95
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 53.90
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 82.20
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 88.10
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 86.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.50
Otaru Timber Company, Limited	50	50	......	March and Sept.	,, 13.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 125.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 102.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 12.00
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	,, 137.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 123.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 85.00

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 410	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 190	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, —	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 110	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316 22	—	—
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 75	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,100	,, 1,150	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co	,, —	,, —	,, 50	1906	£ 40,000	4,000	£ 10	£ 4, per Share	—	—	—

His Excellency Baron S. Goto

Minister of Communications of the Imperial Japanese Government

As First President of the South Manchuria Railway Company, he rebuilt and reorganized the road, bringing it up to its present high state of efficiency, and as a just reward, he was called to take a place in the cabinet.

UNIV.

THE FAR EASTERN REVIEW
COMMERCE ⊛ ENGINEERING ⊛ FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, APRIL, 1909 No. 11.

MR. Z. NAKAMURA,
President of the South Manchuria Railway Company

THE FAR EASTERN REVIEW

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THE SOUTH MANCHURIA RAILWAY

(AN APPRECIATION.)

(By Our Own Correspondent.)

Newchwang, December 27th, 1908.—The South Manchuria Railway, the only tangible asset left to Japan as a result of her victory over Russia; a railroad with the bridges dynamited, the rolling stock deteriorated, the stations demolished, the roadbed destroyed, its trade paralyzed, in fact, an utterly hopeless industrial wreck; this is the picture of the war-scarred road as it came to Japan, a road which, in its short history, has passed through all the gamut of legitimate railway adversities, and a storm of invective and abuse which would have swamped any ordinary enterprise.

The South Manchuria Railway.—Who has not heard of it, by its many synonyms! "The tentacle of the Octopus," "the strangler of trade," "the secret rebater," "the wicked discriminator," "the absorber of Manchuria," "the cunning agent of Japan's designs on China," "the ungrateful corporation which borrows money from its ally to spend it in America," "the soulless monopoly which exacts all and gives nothing in return," "the bar to further extension of Chinese railways," "the land grabber," "the mine robber,"—all these and some more added, according to the viewpoint and the supply of superlatives, sum up the popular foreign conception of this enterprise.

The South Manchuria Railway under former administration, especially under military rule, had many faults and drew on itself much deserved criticism. If there were anything the unskilled military operators omitted doing, if anything went wrong, if a porter or conductor looked crosseyed or a railway guard practised his poor English on the unsuspecting traveler in his desire to perfect his accent, or the soldier responded "Wakarimasen" to the crude efforts of the traveler to speak Nipponese, or anything else under the sun happened to the occasional traveler in the military zone, it was all wicked and intentional. Forthwith, the irate and insulted foreigner wrote a letter to his favorite newspaper in the treaty ports to prove that the wily Japanese and slippery allies were not playing the game, or carrying out the spirit of the alliance.

Were there a shortage of cars, it was charged up to deliberate discrimination. If the Japanese merchant at Newchwang or Dalny had his freight handled first, it were an imposition on equal rights and opportunity. Because the road preferred to haul freight to Dalny, 162 miles further than Newchwang, at the same rate to develop its own property, it was an unpardonable crime against the vested interests of the icebound port of Newchwang; because the directorate has two members formerly of the Mitsui's, ergo, it established conclusively the Mitsui's freight would have preferential treatment. But why prolong the tale of alleged iniquities of the sinful company! If a list were printed of all the crimes and irregularities which a soulless corporation might practice, and a composite photograph taken of the whole, the only suitable legend, according to the critics, would spell out THE SOUTH MANCHURIA RAILWAY COMPANY.

And the company, during all this torrent of criticism and abuse, has kept quietly at work "sawing wood." To paraphrase the remark of the late Speaker Reed, it has "stood silent, mute, speechless, dumb, and, in addition to this, it has not been saying a word."

My impressions of the "Octopus" were in line with the above before making a visit to Manchuria. After two months spent traveling throughout the Three Eastern Provinces, studying conditions and receiving first hand impressions, my viewpoint has been altered, and it may be that the devil is not so black as he is painted. While there is still considerable legitimate criticism which may be directed against the Japanese policy in Manchuria, I am safe in stating that, to-day, an impartial, unprejudiced observer who sees for himself, and draws his own conclusions, refusing to be guided by those who have axes to grind, can find no legitimate cause for complaint with the operation of the road as a public carrier. Eliminating international politics and friction with China, which will always be present while Japan controls the road, and confining comment to the railway and its work, there is much to be said in favor of the company, and praise for its enterprise. The administration has encountered and overcome obstacles, which reflect the highest credit on the officials, and has pursued its work, in the face of public distrust and hostile criticism, to a successful completion. The administration is entitled to the reward for its labors, and it ill becomes even its most bitter poltical and commercial opponents to withhold just recognition and praise for what it has accomplished.

When the South Manchuria Railway Company was organized, and the property taken over from the military authorities, it was a poor apology for a commercial road. The Russians, in their retreat, had destroyed the roadbed, dynamited the bridges, burnt the stations, withdrew the rolling stock, and did everything possible to make the line useless to the enemy.

The Japanese army had to relay the track to narrow gauge to suit the cars and engines hurriedly loaned by the Japanese lines, rebuild the bridges temporarily, repair the stations, and make herculean efforts to meet the enormous demands on its equipment to supply the immense army in the North. The road was constantly taxed beyond its capacity, and this condition prevailed until after evacuation. It was natural that the bulk of the freight should consist of military stores and vast quantities of Japanese products for their men, and it follows that a large amount of this merchandise found its way into the native stores.

With a limited equipment of rolling stock, narrow gauge at that, hardly sufficient to cope with their own traffic, is it any wonder that at times the foreign shipper at Newchwang could not get a car while his Japanese competitor could? This may be an infringement on the doctrine of equal rights, but it is human nature, and all the conventions and treaties in the world cannot provide against such a situation.

It was at this early stage of the road's history under Japanese administration that the cry of discrimination against shippers was first heard, and it continued over the entire period that the company was making gigantic efforts to widen its track, import new cars, and place itself in a position to handle the immense volume of freight. Criticism at such a time was of course admittedly unfair. Again, the most persistent and emphatic note of protest arises from the fact that the railway company, in order to build up its own terminal at Dalny in the leased territory, charges the same rate to the port that is made to Newchwang. Here is an interesting question which has many sides to it, but all we hear is the cry of Newchwang that it is being discriminated against and that such treatment is a violation of equal opportunities.

Dalny, the terminus of the road, is an ice-free port; Newchwang, the natural port of Manchuria, which formerly held a monopoly of the trade, is closed by ice for at least four months of the year. The latter port is the headquarters for foreign firms engaged in the Manchurian trade and has large vested interests, particularly British. The distance by rail from Newchwang to Dalny is 162 miles.

The freight rates on the South Manchuria Railway from the terminus at Changchung to either port is the same—yen 16.30 per ton on 1st class freight, 13.80 on 2nd class, 11.30 on 3rd class, and 8.80 on 4th class, while the car load rate is yen 13.50 for 1st, 11.00 for 2nd, 8.50 for 3rd, and 6.00 for 4th class.

The Newchwang merchants protest against the discrimination in favor of Dalny whose prosperity will be at their expense. But there is another side to the question. The great bulk of Manchuria's exports, in the shape of bean cake, go to Japan, whether shipped from Dairen or Newchwang, and the trade is largely in the hands of Japanese. The railway company, in order to build up its line and port, carries this immense amount of freight 162 miles further at the same rate. If the rate between Changchung and Newchwang is a legitimate one, it is evident that the extra haul must be at a loss to the railway. The rates between Mukden and Newchwang, where the Imperial Chinese Railway

come in competition with the Japanese line, are almost equal, which would indicate that the tariff throughout is based on fair returns.

In criticising the Japanese road for its discrimination against Newchwang, the interests of the shipping seem to have been lost sight of altogether. Just at a time when the producer must sell his crop, the port of Newchwang closes for the winter. Formerly, when this port monopolized the trade, there was no other remedy, and, willynilly, the traffic went to Newchwang to be stored in the godowns of the big hongs until navigation opened. With the opening of the railway and the outlet to the ice-free port of Dairen, the crop movement is facilitated, the farmer secures immediate value for his crops, and the Japanese market receives its beancake in time for fertilizing the ground for Spring planting. The loser is the Newchwang merchant who is deprived of his storage profits and income from handling the freight.

These facts are of course ignored by the vested interests of Manchuria and they call attention to the wickedness of the sly Japanese to arouse public sentiment against them. This is legitimate propaganda, but up to the present, while we have heard nothing but denunciation of Japan's policy, no one has pointed a way out of the difficulty. Would they have the South Manchuria Railway Company raise the freight to Dalny for the benefit of Newchwang during the summer months, and hold the same high tariffs during the winter months to the detriment of the shipper and the market while Newchwang is closed tight?

The tariff between Newchwang and Dalny ranges from Yen 8.10 per ton to yen 4.50 per ton regular and from yen 6.60 to 3.00 on car load lots. In this respect the South Manchuria Railway is like all souless corporations, and consults its own interests first, and these lie in Dairen. It's really remarkable how the Japanese have absorbed foreign ideas and tactics along with other good things.

Perhaps the European railway corporations are truly altruistic and never operate to their own advancement, but in America there are many similar cases to Newchwang and Dalny. If a railroad desires to build up its own terminal port, and charges reduced rates to the shipper for the privilege, the other ports may criticize and condemn, but that's all. The situation in Manchuria is similar, but what are you going to do about it?

Treaties have nothing to do with the case in point. Alliances, the open door, equal opportunities and all other conventions cannot alter the situation. There is only one remedy and that is for China to repurchase the line from Japan as soon as possibe, but that only solves the political side of the question. The situation of Newchwang under any management having the interestsof the companyat stake must always be the same, and as the years go by, instead of improving, it will grow worse. The immense future import and export trade of Manchuria will never be controlled by a port that lacks open communication the year round.

The heyday of Newchwang's prestige and prosperity is past. Any impartial observer not blinded by prejudice can read the handwriting on the wall. Cart traffic in winter and river junks in summer will postpone the inevitable day, but sooner or later the port will dwindle and lose its prominence. Both native politics and the railroads operate against it. The most important question now before the port is the conservancy of the Liao River, and a petition from the Chamber of Commerce and the Consular Body has been sent to the Viceroy asking that steps be taken to safeguard the waterway. The river is silting up and the junkborne traffic from the upper reaches of the Liao is threatened. This in itself constitutes a grave danger to the commercial prominence of the port. This work, unlike the conservancy projects of Tientsin and Shanghai, will have to be undertaken by the Chinese authorities, and their hearty co-operation to preserve the vested interests of foreigners is well known.

The Chinese government has engaged the services of a well-known engineer, Mr. Hughes, to study and report on a certain harbor west of Newchwang which will be ice-free and open the year round. This gentleman is at present conducting a survey and making observations. A new port will then be opened and made the terminus of the Imperial Railway of North China, as an outlet for the winter traffic of such part of Manchuria as comes under the influence of that road. What of Newchwang then?

Perhaps the Chinese government will be guided by altruistic motives and contribute large sums to the conservancy of the Liao, for the perpetuation of foreign vested interests in Newchwang, and abandon the project for an ice-free port, in which all the property will be under its control. May be, but not very likely. The Chinese Government, like the Japanese Government, has absorbed a few ideas from foreign soulless corporations. If this project goes through, as appears probable, the foreign interests of Newchwang will be, between the Rising Sun and the Dragon, scorched on the one hand and bitten on the other. And then the discrimination we hear so much about on the side of Japan will have to be shouldered also by China, for if this port is to be built for political purposes to offset Dalny and be under the management of the Imperial Railways of North China, a government concern, it is natural to suppose that the Imperial Railway management will offer some inducement to shippers to build up the new Chinese port and make a profit on the expenditure. It's really up to Newchwang to protest.

But I am wandering away from the subject of this article, the original discriminator, etc., and have only digressed to point out how utterly wicked is the action of the South Manchuria Railway in its attitude towards Newchwang.

In the matter of car discrimination, here again the Japanese Railway Company was found guilty in the past, but there was a plausible reason as noted above. The car equipment was insufficient for the demand, and naturally the big Japanese firms who supplied the army had the preference. That was the first concern of the road, and of course considerable merchandise of Japanese origin found its way to the market, to the exclusion of other foreign goods. Here was a problem for the altruist to work on. Dalny was practically closed to foreign trade during military occupation.

The wharves were occupied by vessels carrying material for the army and the railway. Naturally every car that could be spared went to Dalny, and as there were no foreign houses in business, spare cars were loaded with Japanese merchandise products for the Manchurian market. Of course this was wrong, and opposed to all the ethics of brotherly love, equal rights, etc. The Japanese, although they were making desperate efforts to import new equipment for the standard gauge, and incurring heavy debts to purchase cars and locomotives, should have consulted the interests of foreigners in Newchwang, and spent millions or so in extra narrow gauge cars to handle their business, only to be later thrown away. The wharves at Dalny should have been cleared of vessels carrying heavy railway material for the road and room made for ships carrying foreign goods for the Manchurian market.

In our imagination, we can see the American, British, or other governments assuming this unselfish attitude under the same conditions.

At the same time, the passenger cars were also inadequate, small, stuffy, narrow gauge boxes, devoid of ventilation, refrigerators in winter and the other extreme in summer. Columns have been written about these awful conditions and impositions on the travelling public. The conductors were surly and impatient, the porters were rude, and the guards were overbearing and insulting. If there were any good feature about the road, it was overlooked entirely by the ever ready letter writer who signed his initials to the stuff sent to his favorite paper in the treaty ports of China.

And during all this time, the South Manchuria Railway officials said little, but redoubled their energies. An occasional defense was offered by their friends in Japan and elsewhere, but these of course emanated from subsidized organs, and were not worthy of credit. No, the pendulum had swung too far the other way. Nothing could alter the conviction of the average foreigner that Japan was not playing the game.

And now what is the situation. To-day the railway has been standardized throughout. Luxurious Pullman sleeping and dining cars and day coaches are at the service of the traveller. Hundreds of freight cars and locomotives are in operation; bridges have been rebuilt, stations remodeled, hotels are being constructed. An army of courteous employees have been trained and are now in attendance and the road and its service brought up to the highest standard. Everybody, it would seem, would be happy, but no, there is still trouble. The railway company is an ungrateful corporation. It borrowed its millions from London receiving about 95 and paying 6% and of course giving ample security, and then turns round and proceeds to spend the money in America.

The ubiquitous letter writer again works overtime to tell his troubles to his treaty port paper. He growls at the service, and the American Pullman is the last straw. The latest effusion to a Shanghai daily sums up the situation:

"In any case, and under the best conditions, a railway that deliberately exposes passengers to the unnecessary horrors and discomfort of the American corridor-bunk system, when all civilized people, unfettered by trusts and emigrant traditions have adopted sleeping cars that permit of quiet and privacy, owes an explanation to the public at large.

"And when you come to think of it, why should British capital have been spent by the South Manchuria Railway in introducing these trans-Atlantic atrocities?"

Why! indeed! we echo, and, immediately, the chorus from an old music hall ditty runs through my mind:

"I owe tin dollars to O'Grady,
He thinks he has a mortgage on me life,
He comes around to see me every mornin',
And at night he sinds his wife."

Nothing can satisfy the earnest growler who is looking for trouble.

Here was a situation where a railway needed cars, needed locomotives, needed everything, and needed everything quickly to cope with the traffic and appease the critics. It borrowed the money in London, paying good interest, and giving good security, and then looked round to see where it could get the equipment delivered in the shortest possible time. British builders could do it, in fact wanted to do it, offered to do it, but time was the essential quantity, and the contracts went to America where the material was either on hand or could be delivered quickly. Not that the material was any better. American material never did amount to anything outside the American continent, and it is really remarkable how the railroads there can operate over immense distances with the miserable equipment they use.

The Japanese made an awful blunder here and nearly broke up the alliance. But there is this satisfaction for the critics. The equipment purchased in America is of course very inferior and will soon wear out. The South Manchuria Railway Company will then have to borrow a few more millions and with plenty of time for delivery it will of course purchase really serviceable cars and locomotives and bring about a rapprochement with the disgruntled ones.

But here I am digressing again, and wandering from the subject of the wicked discriminator, etc., etc. All this discrimination in cars is of course ancient history. What is the situation to-day? The writer has made many anxious inquiries throughout Manchuria trying to secure evidence of this crime of car discrimination, but without success. Everybody is being served as rapidly as possible, and, in Newchwang particularly, the railway company seems to be striving to gain the good will of the foreign shipper.

The most serious charge against the road was an incidental remark from the Newchwang manager of the greatest corporation in the world, the so-called original "Octopus," who claimed that he had to pay his freight in advance while the Mitsui and others had a current account payable every two weeks or monthly. This, of course, is unfair competition, and real discrimination against the poor old Standard

Oil Company which needs the money, and it is probably keeping the good people at 25 Broadway awake nights.

And speaking of the Mitsui firm, it is also claimed that the house has two of its men on the Board of Directors, and the natural inference is that the Mitsui's freight receives preferential treatment, and again we have the cry of discrimination from freight shippers. It is a fact that two of the best men of the house of Mitsui are directors of the railway, and from personal observation it might easily be concluded they were evidently placed there because of their business qualifications and fitness for the job. The fact is lost sight of, that the South Manchuria Railway Company is a stock company, also that the House of Mitsui is the strongest, wealthiest, and most influential concern in Japan. Its ramifications are many, and it is represented in some of the leading industrial concerns in Japan besides being allied with other strong aggregations of capital.

When we stop to consider that only Japanese or Chinese can hold stock in the company and the Chinese refrained from subscribing it left the stock to be taken up in Japan. It occurs to us as a logical inference that the House of Mitsui, being the strongest firm in Japan and allied to many other large corporations, subscribed for and now control a certain proportion of the stock, and it is not unlikely that the house has adopted the well-known foreign custom of having theirs hares represented on the directorate. This is really unpardonable on the part of the Mitsui people, and the practice should be discontinued and discouraged. Such tactics might be tolerated or overlooked elsewhere, but it is positively wicked for those so young at the game to ape their elders.

And now we come to the real bona fide out and out old time discrimination. It is a hard nut to crack, a difficult problem to solve. In America they are still pondering over the subject and striving to down the rascally corporations. The Americans thus have troubles of their own, while out here, the same question becomes mixed up with the open door, equal opportunities, sovereign rights, etc., until it becomes so confused that it takes on the status of a casus belli, or something as bad.

The South Manchuria Railway Company owns a coal mine at Fushun. At least it is in possession. And this is one of its principal assets. It's a long story about the coal mine, but to clear up matters it ought to be presented. The Chinese say it belongs to them. The original concession was granted to two Chinese merchants. One was a good business man and the other was not, so the one that was not sold out to the one that was and became eliminated from the enterprise. The good merchant operated the mine and sold his product at Mukden and neighboring towns, making a good profit. Then came the Russian railway and its companion, the Bank, and the miner sold his coal to the railway at a good profit. But the water came up in the shaft and prevented operations until pumps could be secured. The Russo-Chinese Bank loaned the miner about 40.000 roubles with which to purchase pumping machinery and restore the mine to a working basis. One of the guarantees for the loan was that the superintendent and other principal employees should be Russians, to which the Chinese owner acceded. And then work was resumed, more coal produced, and a good market found with the railway.

Then came the war, and the retreat of the Russians. When the Japanese advance reached the mine, they found Russians in charge and coal ready for the use of the railway.

Now the Japanese simply say that the mine was being worked by Russians, supplying coal to the Russians. They found Russians there when the army arrived, and therefore the mine was Russian, and so belongs to the Japanese as spoils of war. The Chinese government has remonstrated and attempted to submit the question to arbitration. The Japanese Government simply refuses to discuss the matter and says in effect to China, "You cannot prove to us that the mine was not Russian."

In the meantime the mine is made part of the Government assets in the South Manchuria Railway Co. and forms part of the security for the loans for the reconstruction of the road. The equipment of the mines has been increased to secure an output of 3,000 tons a day, and the railway is being double tracked to handle the enormous tonnage. So far as Japan is concerned, it is apparently a closed incident, and what is China going to do about it?

Now the important phase of the situation is that Japan has a coal mine, on which she has spent millions, and expects to secure commensurate profits. The mine is a part of the railway and here comes the old, old story. What chance has any other coal mine along the railroad of competing? There are other mines at Liaoyang, but it is cheaper to ship by cart than by railway. There are other mines but their product is debarred from competing with the railway mine. When we remember that railway companies operating coal and iron mines in America have discriminated against the independent operator until the matter was made the subject of congressional investigation, and even today there is small chance of a square deal under such conditions, we can appreciate the situation in Manchuria where there is no supreme law but that of the stronger to insure fair treatment.

This matter has not yet reached an acute stage in Manchuria for the independent mines are a few small Chinese affairs, but the seeds are planted for a crop of trouble in the future, and the world will again hear of discrimination, to which will be added rebates and all the other corporation crimes in restraint of trade.

As to rebates, this is another sore point for the foreign shipper. You can hear various statements about secret rebates to favored Japanese firms. Perhaps they are true. I have heard of secret rebates before. So has everybody in the United States and out of it. It is taken for granted that many of the largest trusts have been fostered and nourished on this system and have used their advantage to cripple the independent or small producer. It is deplorable that the Japanese should so far forget themselves to adopt a habit which is very bad form now in the United States. The trouble has always been the impossibility of securing evidence to convict. The Sherman law in America keeps the rebaters hustling nowadays to devise new evasions. The same situation exists in Manchuria. The average foreigner or Chinese merchant will confide to you that the big Japanese firms are receiving secret rebates, but it is extremely difficult to secure corroborative evidence. In fact, I know that this matter was thoroughly investigated by a foreign government official in Manchuria who reported to his superiors that no proof could be brought to support the allegation.

The Railway Company gives rebates to any firm whose freight bills exceed yen 100,000 per annum. The printed regulations concerning rebates are printed for public distribution and we quote from them the rates to and from Dairen, in regard to Liaoyang, Mukden, Tiehling, and Kwan Chentze and to and from Ying-kau to Dairen, Liaoyang, Fengtien, Tiehling, and Kwanchentze as follows:

TO AND FROM DAIREN:

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 8.10	G. Y 6.90	G. Y 5.70	C Y 4.50
Feng-tien (Mukden)....	9.40	8.00	6.60	5.20
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80
Yin-kau New-chwang.	8.10	6.90	5.70	4.50

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Feng-tien (Mukden)....	7.70	6.30	4.90	3.50.00
Tiehling...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu.....	13.50	11.00	8.50	6.00
Yinkau New-chwang.	6.60	5.40	4.20	3.00

TO AND FROM YING-KOU (NEWCHWANG):

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen....	G. Y 8.10	G. Y 6.90	G. Y 5.70	G. Y 4.50
Liao-yang.	3.90	3.30	2.70	2.10
Fengtien..	7.15	6.05	4.95	3.85
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen...	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Liao-yang.	3.30	2.70	2.10	1.50
Fengtien..	6.05	4.95	3.85	2.75
Tiehling...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu	13.50	11.00	8.50	6.00

Regulations Concerning Rebates.—ART. I. The South Manchuria Railway Company will allow rebates at the following rates to any one person or firm who pays a sum of freight over -Y-100,000 every year commencing on 1st October and ending on 30th September of the following year:—

Over -Y-100,000....	under	-Y-150,000.....	3%
" 150,000....	"	200,000.....	3½%
" 200,000....	"	250,000.....	4%
" 250,000....	"	300,000.....	4½%
" 300,000....	"	350,000.....	5%
" 350,000....	"	400,000.....	5½%
" 400,000....	"	450,000.....	6%
" 450,000....	"	500,000.....	6½%
" 500,000....		....	7%

ART. II. Those desirous of qualifying for the allowance of rebates as provided in the preceding article shall present an application in the company's form and shall receive the recognition of same by the company.

ART. III. The allowance of rebates is subject to the following conditions:—

The Company reserves the right to cancel its recognition given to a client, whenever it considers him to have acted in any manner prejudicially to the interests of the Company.

ART. IV. The rebates due will be paid on the elapse of 6 months after the end of every one year's term, namely on 31st March.

ART. V. In case a client qualified for the rebates wish to appoint an agent or agents for the shipment and delivery of goods, his or their names and addresses shall be notified in writing to the company.

This seems fair enough, but the system is a bad one and just now in the United States it has made a number of undesirable citizens out of some prominent captains of industry. The difference between the 3% rebate to the small shipper and 7% to the big shipper amounts to a fair profit to the latter. It opens the way, however, for a profitable freight brokerage business for the Japanese, under which the small shipper may secure a partial reduction by having the agent handle his freight.

The tendency of such rebates is to give the big shipper a decided advantage over the small operator, and the firm controlling the export trade in bean products and the import trade in cotton goods, rice, matches, and saki, has an assured 4% and possible 7% over the small trader. The exports of beans and bean cake through the port of Dalny for the six months ended December 31st, 1907, amounted to approximately 70,000 tons, or approximately, say 140,000 tons for the year. The average rate on this class of freight from stations beyond Liaoyang is about yen 7.00 per ton in car load lots, a total of yen 980,000 from this product alone.

As Japan consumes nearly all the bean products, that trade will necessarily remain under the control of their nationals and insures a 7% rebate in freight. There seems to be no provision against pooling and it seems feasible for the foreign importers to pool their interests and also secure the maximum rebate.

There is no attempt made to conceal these rebates. Every shipper can procure the freight schedule from the company and take measures to secure the maximum reduction. But the cry of discrimination is abroad and the Chinese and foreigners point to the preferential treatment accorded a few large Japanese firms who control the trade, making it impossible for them to compete, without sacrificing their profits.

Here is a situation not unlike many other similar ones in other parts of the world. In America, while there is no actual evidence of secret rebates to the big shipper, yet the public is convinced that such rebates are given. The steamship lines favor the best customers and grant big discounts for cargo lots; the Shipping Ring at London is accused of granting secret rebates to favored firms in Singapore, and the other firms are protesting against such treatment.

Once again the question may be asked, Well, gentlemen, what are you going to do about it? Which foreign nation can approach Japan with clean hands and remonstrate? The United States? Hardly. Americans invented the system and Japan has simply improved on it. Great Britain, the nation most vitally concerned, ought to do it. The Royal Commission on Shipping Rings now investigating the Conference rebates will hardly dare antagonize the most powerful shipowners of Great Britain, even though Singapore call aloud for relief and punishment for the wicked rebaters. The Japanese firms in Singapore have already rights under the most favored nation clause which deserve serious consideration from the Royal Commission.

While waiting for the next move, the South Manchuria Railway Company is working overtime hauling immense quantities of freight, paying attention to business and making profitable returns for the shareholders. If the employees of the road were surly and uncivil in days gone by, it is not so now. I traveled from Dalny to Mukden, Mukden to Changchun, back to Mukden and Dalny, and again to Newchwang, always on the Express, stopping off for a few days at the larger towns. In a life filled with travel, I do not remember of a more enjoyable, comfortable, or delightful experience in a railroad train. The cars are regular Pullman's, bought in Chicago and set up here by Pullman's men, comparing favorably with those on the best roads of America. They represent comfort to the American, but to the European, who desires privacy, they are an abomination. If the railway company would publish in a conspicuous place that there are two private compartments to each sleeping car, for those who wish to pay the extra charge, it would relieve the road of a lot of criticism, and spare the contented traveler from listening to the explosions of wrath from disgruntled continentals who are forced to sleep with the common herd in the beastly American corridor bunk car fit only for emigrants.

The whole trouble in this respect lies in the fact that nearly all the passengers on the South Manchuria Railway are Europeans who have never previously been introduced to a Pullman sleeper. The Pullman sleeper habit is an acquired vice. It takes time to develop any appreciable qualities in the processes provided by Pullman to tuck the traveler away for the night. The South Manchuria Railway Company should issue with each ticket full instruction as to good form, to direct the behavior of passengers in such a car. The American, as a rule, recognizes the rights of others and especially when he is confined to the limitations of a Pullman. He does the regulation acrobatic "stunt," get under the curtain, and after indulging a few contortions in disrobing, lies down and goes to sleep peacefully. Some Europeans disrobe in the corridor, make a lot of unnecessary noise and go behind the curtains muttering all kinds of direful threats against the Japanese in general for buying the abominable cars, and against the Americans in particular for inventing them.

But they seem to be happy in the morning after a comfortable night's sleep in the "bunk," and when the beds are made up are quite satisfied with the car. The dining car, however, is a winner. Whatever maledictions have been called down on Pullman for inventing the sleeper, have been offset by the blessings on the dining car. The meals are excellent, the prices moderate, and the attendance all that could be desired. To the chronic growler, however, there is always some flaw in the service.

My experience is that the treatment and service on the South Manchuria Express cannot be excelled on any train in the world. The conductor, guard, porter, and table boys are obliging and courteous, and go out of their way to serve passengers.

The simple, expeditious, efficient American baggage check system was recently adopted by the company. This is a blessing and Russia and China could readily take a lesson, and do likewise to advantage. There is no hideous weighing of trunks to squeeze a few yen from the passenger for excess baggage, nor does the passenger have to follow up his trunk to see that it gets placed aboard the train, and then have to watch it at every station to see that some one does not appropriate it.

The Japanese are exerting every effort at the present time to overcome the effects of past management and criticism of the road. It is only since November that they have been able to show results and make good. Now they are running a railroad in earnest and looking for the support of the traveling public. They are entitled to the good words and patronage of the public for the fine service.

I left Dalny on the Express, Christmas morning, for Newchwang. There was only one other foreign passenger on the train, the Russian Consul who was on his way home, and two Japanese, one a newspaper editor in Dalny, and the other an army officer. Probably, I was the only one who had paid a fare.

As the train pulled out of Dalny, I went into the dining car. To my great surprise and delight, the car was a mass of decorations. Festoons of silk ribbon draped from window to window and arched across the top, banks of flowers and greens, silk flags all arranged most artistically, gave the whole interior a most decided cheerful holiday aspect. Once before I had traveled in one of the famous limited trains in America on a Christmas Day, but there were no decorations, nor any attempt made to make the homesick traveler feel brighter, not even the dinner varied much from the usual menu, but the attendants were there with palms outstretched waiting for the Christmas present just the same.

The contrast was marked. The Christmas dinner served on the train in "heathen" China was a real Christmas feast and the waiters tried to make it pleasant and cheerful. There were no hints for tips from any member of the crew and when I gave the boy some yen for a Christmas remembrance, it was a long time before he realized that it was all for him.

That train probably ran through to Changchun after I left at Tashihchao with only one Christian passenger. After that can anyone accuse the South Manchuria Railway Company of discourtesy or lack of attention to their passengers? I consider it one of the most delicate compliments that could be paid to the foreign traveler.

Fancy a railway train being decorated in Europe or America for a Japanese or Chinese religious holiday. With all our boasted enlightenment, we have not reached that stage.

OBSTRUCTIVE ATTITUDE OF THE PHILIPPINE ASSEMBLY

After eight years of persistent work in the interests of the Philippines and their people, during which time he has extended to them the greatest degree of participation in local government, President Taft finds the body of legislators, for which his liberality is responsible, arrayed against him in his effort to find a market for Philippine tobacco and sugar in the United States. And, indeed, up to the time that the Payne Bill was introduced in the Congress, there was every reason to believe that any legislation tending to secure a market for Philippine products would surely receive unanimous support from the Filipino deputies. But no sooner did it become apparent that there was prospect for action providing for a limited free entry of sugar and tobacco into the United States than a resolution directed against the legislation was unanimously adopted by the Assembly.

The Payne Bill provides for the free entry of all products of the Philippine Islands with the exception of sugar and tobacco, the latter being restricted to a limited amount yearly. It also provides for the free entry of American manufactures and other products from the United States into the islands. In making an excuse for their action the deputies declared that, by opening the country to American enterprise, it would endanger the prospect for independence and that in addition to this threatened danger, the free entry of American goods into the islands would result in a deficit in revenue. But even a joint resolution, substituted by the Commission, providing in a proposed recommendation that provision be made by Congress to cover the deficit, was turned down by the anti-Taft assembly. The members stuck to the excuse that, with exploitation by American capital, the islands would never see the dawn of independence.

The bill in amended form has passed the House of Representatives in Washington and there is prospect that it will become effective even if amended further. Rice has been removed from the list of products to be admitted free into the United States and it may be that other interests may make a hard fight against the bill and secure some changes, but that it is on its way to final passage, is the general belief in the more optimistic Philippine circles.

There is also reason to believe that President Taft is far from pleased with the attitude of the Assembly, and, in view of the many protests from all parts of the islands against that body's attitude, there may be some action taken by Congress restricting its powers.

The only hope for the islands rests in securing a market for their sugar and tobacco, not that the United States would necessarily be a large purchaser but that China would have to meet New York prices less difference in freights, etc. Already capital is looking for investment in the sugar industry in the islands, provisionally upon the passage of the Payne Bill, and it is expected that other industries, backed by American and foreign capital, will surely follow. To allow any body to interfere with any such prospect would prove a most serious mistake of the administration and we do not believe that it would stand for any such attitude of obstruction.

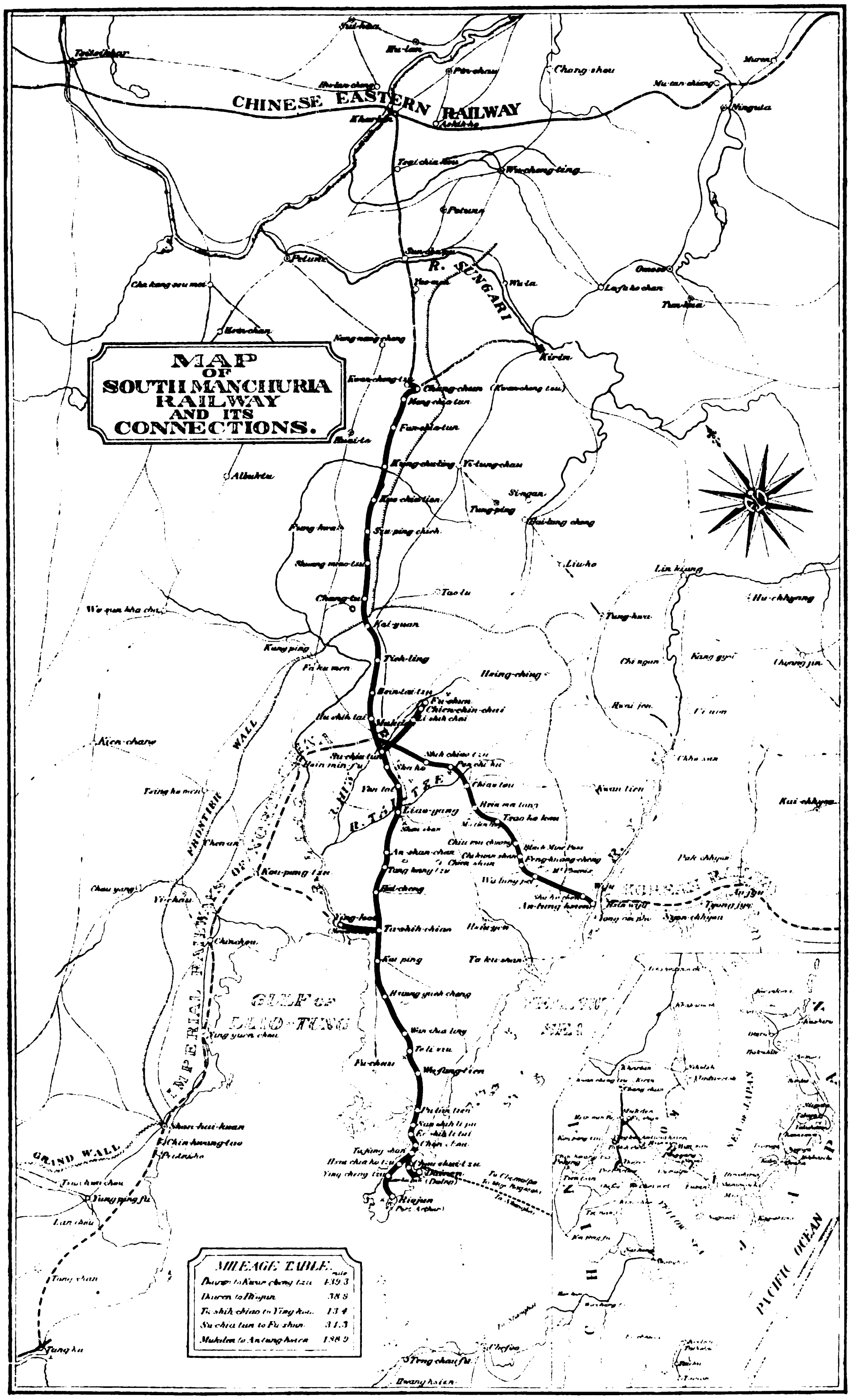
Very fortunately for the Philippines and those who have been working in their interests, Congress has authority to legislate as it sees fit without consulting the wishes of the irresponsible politicians of the archipelago.

FAILURE OF MANILA STRIKE

The successful struggle of the Manila Electric Railway and Light Company against its striking employees has had the desired result of putting a quietus on the agitation that but recently threatened to seriously disturb industrial conditions and result in great hardship on the working classes. The firm position taken by the company from the initiation of the strike, its persistency in providing ample transportation for the public, under the most trying conditions, and its refusal to recognize the alleged union or the agitators controlling it, were responsible for its complete victory. The incarceration of an agitator, one Gomez, for addressing threatening letters to business firms and the fact that the prison authorities obliged him to earn his daily bread by the sweat of his brow for the first time in his life, has also had the moral effect of silencing a large *junta* of these gentlemen. The result is that all the motormen are out of a job and must wait for vacancies in the service. General Manager Graves has offered to show a preference for men of large families and those who were intimidated by the strikers and forced to quit work against their will, but all must begin at the foot of the ladder again.

Had the company shown any weakness or compromised in any measure, it is certain that by this time every industry would have been affected. That the company spared no expense or loss to make the victory complete, and thus saved the community of Manila millions of dollars, should be gratefully acknowledged by all the other industrial institutions, who have been thus protected.

As for the agitators who were misleading the workers in all branches of activity, the fate of Gomez has taught them a lesson, and the misguided, who are now suffering, have for the time lost faith in those to whom they entrusted their opportunity to earn a competency, and who have so signally failed them.


MAP OF SOUTH MANCHURIA RAILWAY AND ITS CONNECTIONS.
CHINESE EASTERN RAILWAY
R. SUNGARI
GULF OF LIAO-TUNG
GRAND WALL
PACIFIC OCEAN
MILEAGE TABLE.

HISTORY OF THE SOUTH MANCHURIA RAILWAY

The South Manchuria Railway between Kuangchengtzu, Dalny, and Port Arthur was transferred to the Japanese Government by Russia at the close of the Russo-Japanese War. The organization of a company to operate this line was authorized by an Imperial Ordinance issued by the Emperor of Japan, and in pursuance of the provisions thereof the Organization Committee held its first meeting on the 10th of August, 1906.

It was decided that the head offices of the Company should be located at Tokyo, with a branch office at Dalny, that the Company should be capitalized at Yen 200,000,000, the Government to receive Yen 100,000,000 in shares for

(1) Railways already constructed (excluding the rolling stock now in use, rails of the Mukden Antung-hsien light railway and accessories).

(2) All property accessory to the above railways (excluding the property in the Leased Territory which shoud be specially designated by the Government.)

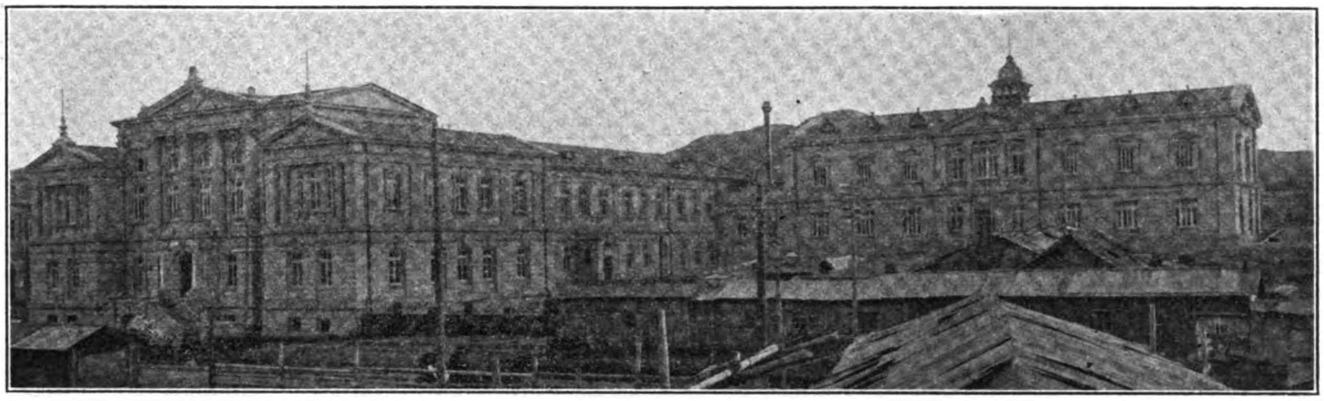
(3) Coal mines at Fushun and Yentai.

It was also provided that interest, guaranteed by the Government, is to be paid at the rate of 6% per annum on the paid up capital of the Company for fifteen years after the registration of its organization and that the subsidy shall in no case exceed 6% of the paid up capital, that the subsidy with an interest of 6% shall be made a liability of the Company to the Government, repayable with the excess of the Company's dividends above 10% per annum on all shares.

There were, when subscriptions were called for in the autumn of 1906, 11,467 applicants for 106,643 418 shares. Of these all applications for less than ten shares were rejected, leaving 11,356 applicants for 106,643,016 shares or 106,544,016 shares in excess of the 99,000 to be allotted, the apportionment being as follows:—

	Shares.
Apportioned by calculation	94,333
Apportioned by lot	4,667
Directors' shares, reserved	1,000
Total	100,000

The Government's portion, Yen 100,000,000, was regarded as paid up, and the actual subscribed capital of the Company is now Yen 120,000 000.



SOUTH MANCHURIA RAILWAY'S GENERAL OFFICES AND ADMINISTRATION BUILDING AT DALNY, RECENTLY COMPLETED

NEW JAPANESE BARRACKS FOR THE RAILWAY GUARDS AT MUKDEN

Although it was provided that the South Manchuria Railway should be a Chinese-Japanese organization, the Chinese failed to avail themselves of the opportunity to purchase shares and protested against the organization of the Railway on the grounds that the Articles of Association were inconsistent with the terms of the Peking Treaty signed in December 1905, and claimed that Japan had included in the list of "property" of the South Manchuria Railway Company certain branch lines and collieries, notably the Yentai and Fushun Mines, which they claimed, although a certain amount of Russian capital was used in their operation, were Chinese private property.

Administration.—In view of the varied functions delegated to the Railway Administration as well as the intimate association of this organization with the Japanese Government, the political significance of its policy, and the extent to which its control of the communications of southern Manchuria may affect the commercial development of this region, can scarcely be overestimated.

The Railway Company is empowered to:—

(1) Engage in the following business for the benefit of the Railway:

(a) Mining, especially the working of the Yentai and Fushun collieries.

(b) Marine transport.

(c) Electric works.

(d) Sale on consignment of the principal goods carried by rail.

(e) Warehousing business.

(f) Construction and administration of land and houses on the land belonging to the railway.

(2) Make the necessary provisions for education, health, and engineering work within the limit of the land belonging to the railway.

(3) Collect fees from the inhabitants within the limit of land belonging to the railway to defray expense of above.

The establishment of a Japanese settlement at Newchwang in an area not as at Liaoyang, Mukden, and Tiehling, acquired from the Russians, but purchased from the natives, with an administration formerly controlled by the Military Governor of the Leased Territory, was perhaps the first instance of the application of the powers conferred in (2) and (3). If the tracts varying from one thousand to two thousand three hundred acres at the above mentioned cities had been put to a similar use, the Railway Company would have assumed the dignity of a Colonial Administrator, and this circumstance drew on the Japanese much adverse comment.

The Railway is protected by a force of approximately fifteen thousand men stationed at different points along the main and branch lines, and quartered not only in barracks near the stations, but within the neighboring cities as well.

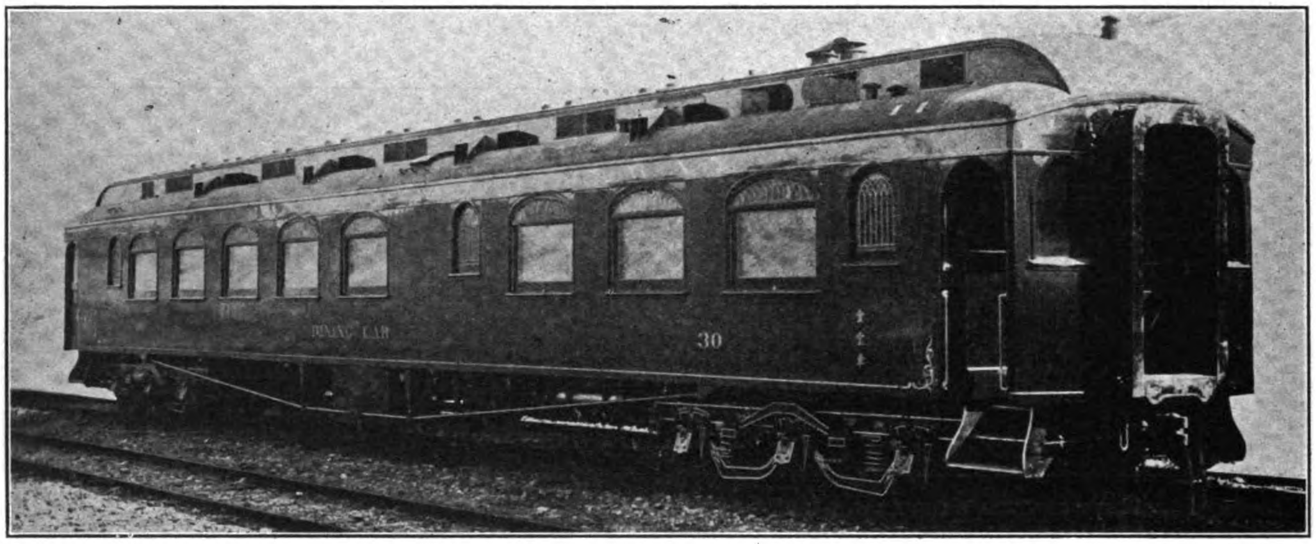
The policing of the Railway is under the supervision of the Governor General of the Leased

Territory who has charge also of an elaborate postal and telegraph system. The Manchurian Consular Courts have civil jurisdiction in the Railway Settlements.

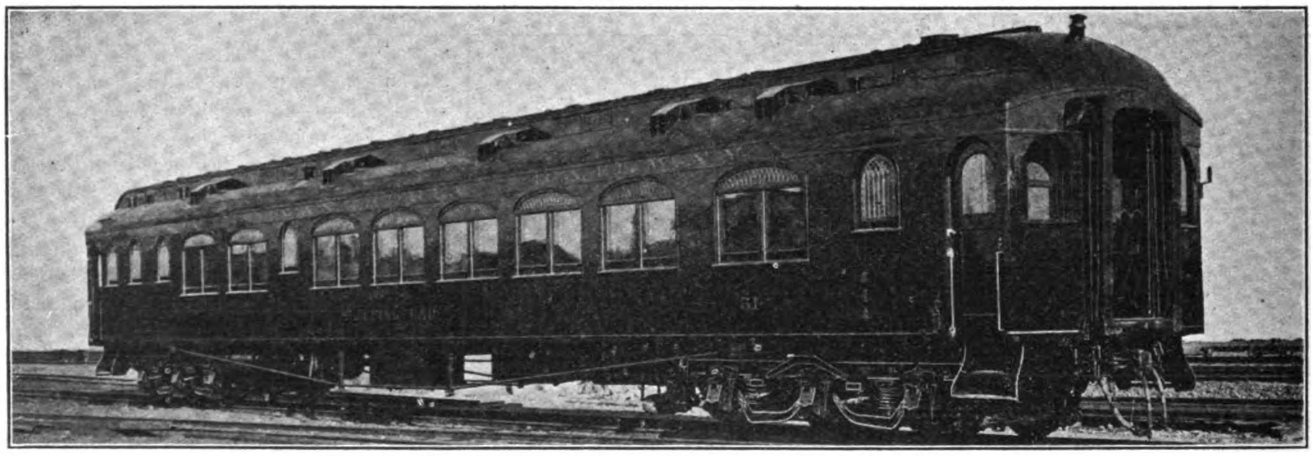
The President of the South Manchuria Railway Company receives Yen 50,000 per annum, the Vice-President 30,000, the six Directors 12,000 each (six thousand salary and six thousand allowances), the Chief Secretary 10,000, and five overseers 1,000 each. At first the total number of officials and Japanese employees was 7,860, giving an average of approximately eleven per mile, and the monthly pay roll amounted to Yen 281,552.35. This force has since been greatly reduced, and the road is now being run on strict business and economical lines. At present nearly all the construction work is being carried on by Chinese, as the Japanese laborer can not compete with him.

Equipment.—The military authorities, formerly in control of the Railway, declined to furnish information regarding the rolling stock on the line. Notwithstanding the demand for shipping facilities and the stagnation of freight at Tiehling and other northern points, numbers of cars were returned to Japan, and Japanese as well as foreigners and Chinese complained that the Administration, in its haste to reduce the rental paid to the Railway Companies in Japan for the use of their carriages, sacrificed large profits and seriously interfered with trade. Until steps were taken to widen the gauge and new rolling stock imported, there was no amelioration of these conditions.

Seventy box and open freight cars and second and third class passenger cars were all that were in use at one time, while the company was at work standardizing the line and awaiting new equipment from America. It was during this period that the criticisms of discrimination were most severe and many complaints found their way into print without any serious effort being made to analyze the underlying causes. While there was enough ground for some criticism, yet it is unfair to attack an enterprise for incompetency, while it is striving to get on its feet.



PULLMAN DINING CAR ON THE SOUTH MANCHURIA RAILWAY



PULLMAN SLEEPING CAR ON THE SOUTH MANCHURIA RAILWAY

There are four repair shops at Dalny, one at Liaoyang, three at Kuangchengtzu, and one at Port Arthur.

There are 781 railway buildings, including watch sheds, etc. Practically the only substantial buildings were constructed by the Russians and for a long time were in bad condition, and the repairs attempted by the Japanese were of the most temporary character. Tile roofs damaged by shell fire were roughly patched or where the original covering was wholly destroyed galvanized iron was substituted. Structures that were gutted by fire were lined with a wooden shell eight or nine feet high Windows were boarded or the broken panes covered with paper and months of rough usage and careless treatment did not improve the condition of buildings which the Russians attempted to destroy as they retreated toward the north.

Here again the critic found fault with the administration, but the stations have since been made as comfortable as possible, and new edifices are going up at the most important places. The railway has confined its energies first to improving the track and rolling stock, so that they could handle the traffic, which would make new stations possible.

There are at the present time 254 permanent and 24 temporary bridges. The former are of no particular size north of Mukden. As the Russians dynamited most of the larger structures between Mukden and Ssuoingkai they must necessarily be rebuilt.

The old roadbed was well laid and the embankments in good condition. Sixty-five pound rails were used and the ties are still serviceable.

It was stated that three years would be required to widen the gauge, from 3′ 6″ to 4′ 8½″.

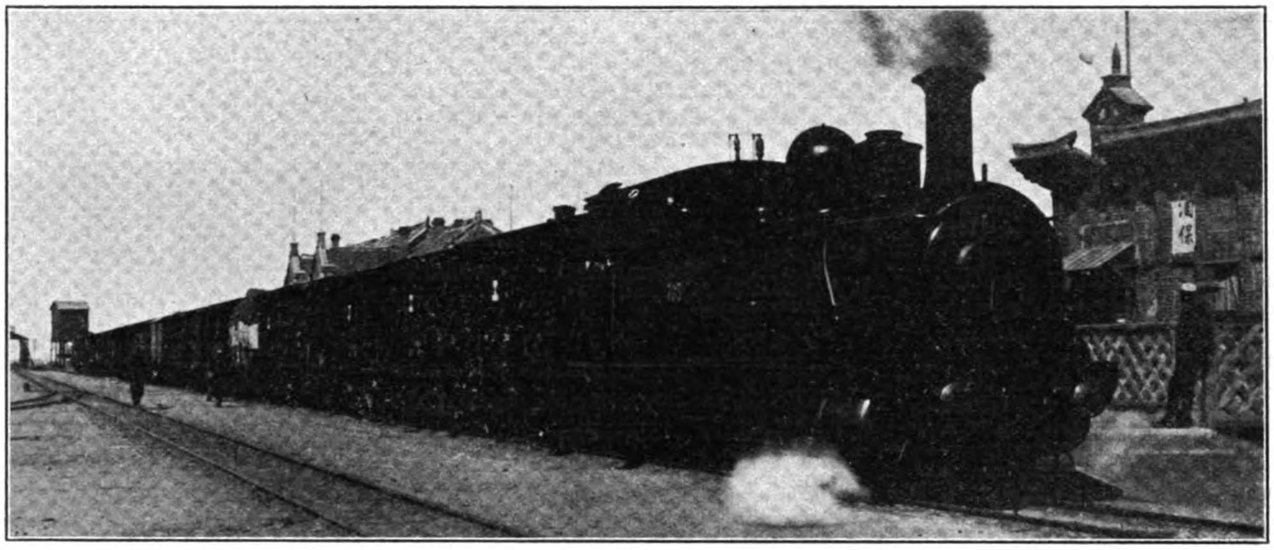
This has been completed in half the time, and the company is at present double tracking the work from Dalny to Suchiatun to handle the coal output of Fushun.

Operation.—The area traversed by the South Manchuria Railway is one of the richest agriculturally in the world, populated by a hard working and thrifty people who as pioneers and settlers are more open-minded than their fellow countrymen in China proper. Each year brings thousands of immigrants from the provinces of Chihli and Shantung, and this human tide is gradually flooding the heretofore fur market and Changchun (Kuangchengtzu) the great distributing center for northern Manchuria and Mongolia.

Ordinary goods were charged 5 sen per ton per mile between Tashihchiao and the north, and between that place and Newchwang, while the same articles may be carried between Tashihchiao and Dalny for two sen per ton per mile. There are no positive proofs that preless but delivery may be expected within a certain definite time.

This condition can not be urged as an argument against the road at present, for, with the new equipment, every effort is being made to cater to foreign shippers at Newchwang, and at the same time handle the numerous freight from the north.

The Antung-Mukden line does not pay



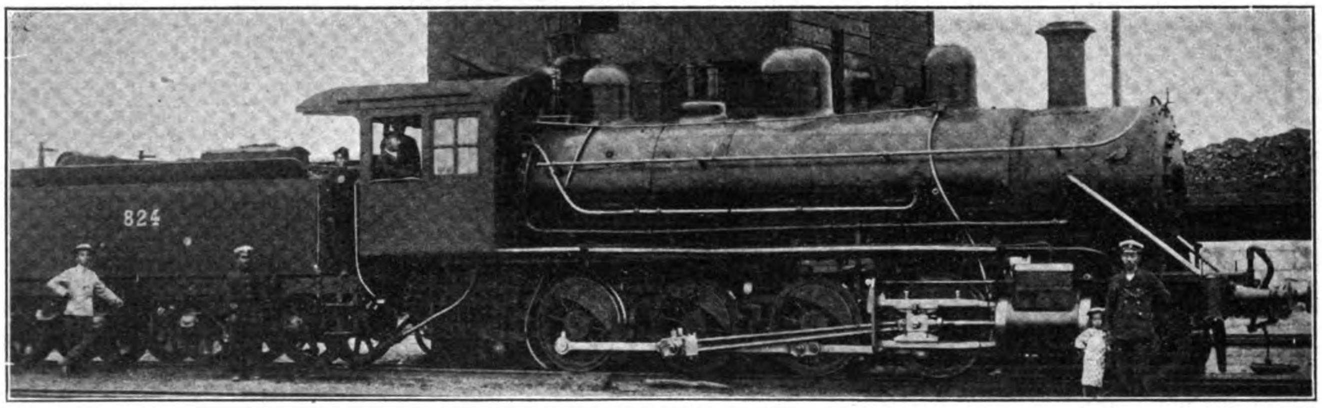
SOUTH MANCHURIA RAILWAY.—FREIGHT TRAIN AT NEWCHWANG

uncultivated plain of Heilungchiang and Mongolia, penetrating the forest-clad hills along the Yalu and peopling the valleys in the mountains that rise to the east of the great Liao Plain.

There are a number of prosperous cities, each having served as a market and distributing center for the country in its immediate vicinity, located at intervals of between thirty-five and ferential rates have ever been granted Japanese merchants, but there are indications that they have received privileges not accorded Chinese and foreigners, and the discrimination in favor of Dalny, at which place under the old military administration it was practically impossible for a foreigner to engage in trade, has in itself been the cause of much complaint on the part of the foreign merchants of Newchwang.

running expenses at the present time, but it is hoped that it will ultimately become profitable owing to the fact that it will form part of the through trunk line to Fusan and will be of great service in developing the mineral resources of south-eastern Shengking.

There are now 187 miles of track but the line will be considerably shortened when the gauge is widened and the final roadbed constructed.



TYPE OF NARROW GAUGE AMERICAN LOCOMOTIVE IN USE ON S. M. RAILWAY BEFORE CONVERSION TO STANDARD GAUGE, BUILT BY THE AMERICAN LOCOMOTIVE CO.

forty miles, along the railroad between Newchwang and Changchun.

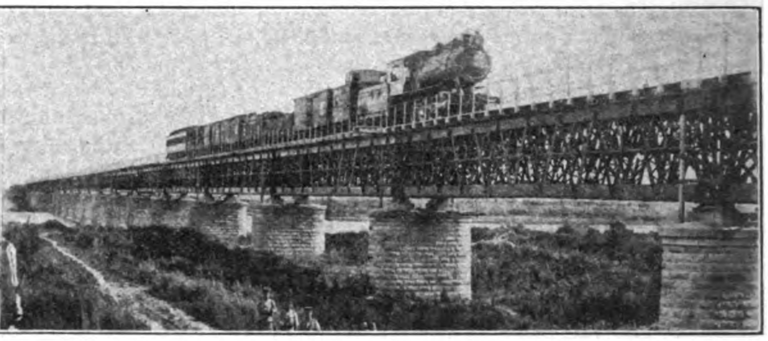
Tungchiangtzu and Fakumen, the former on the banks and the latter not far from the Liao River, and Tiehling which is on the river and railway as well, have been the great centers of the bean trade. Thousands of carts each winter brought their loads to these points for storage and shipment south when the river opened in the spring. Mukden has been the principal

It has been stated that no single line of Railway can carry the annual Manchurian bean crop to the seaboard, nor can the South Manchuria Railway Company ever be able to furnish adequate transportation facilities. There was in fact, at one time, so much dissatisfaction with the management of the line and the delays of freight in transit that a number of shipments were made from and to Newchwang by cart for not only is the cost of transportation slightly

The Yentai and Fushun branches, respectively 14 and 25 miles in length, connect the coal mines at these places with the main road.

A railway probably will shortly be constructed between Changchun (Kuangchengtzu) and Kirin, and it is stated that a company has already been organized with a capital of 4,000,000 Taels, and has engaged Japanese engineers to undertake the preliminary surveys.

FREIGHT CARS ON THE SOUTH MANCHURIA RAILWAY



BRIDGE OVER THE HUN HO

Principal Officials of the Railway Administration.—President, Z. Nakamura, Dairen; Vice-President, S. Kunisawa, Dairen; Directors, C. Seino, (Tokyo Branch), Tokyo; K. Kubota, N. Inuzuka, S. Tanaka, M. Kubota, S. Okamatsu, K. Nonomura, Dairen; Secretary, M. Numata, Dairen; Chief Railway Engineer, S. Kunisawa, Dairen; Chief Mining Engineer, Matsuda Fushun Collieries; Chief Accountant, S. Yasuda, Dairen; Construction Engineer, S. Hori, Dairen; Superintendent of Hospitals, Dr. K. Kasai, Dairen; Captain Superintendent, Capt. K. Matsuo, Dairen; Mechanical Engineer, M. Yoshino, Dairen; Harbor Engineer, T. Uchida, Dairen; Electrical Engineer, Y. Kasuya, Dairen; Superintendent of Hotels, K. Uyeda, Dairen; Store Superintendent, S. Yamamoto, Dairen.

COMPARATIVE SEMI-ANNUAL STATEMENT OF PROFIT & LOSS

	1st WORKING HALF-YEAR (*April-Sept. 1907.*)	CR	2nd WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Railway Receipts.....	Y 4,093,424.860		Y 5,675,462.253
2. Mine Receipts.....	647,065.693		837,153.557
3. Harbour Receipts.....	146,848.338		425,644.280
4. Hotel Receipts.....	16,451.800		42,940,910
5. Electric Work	5,674.000		59,247.400
6. Land........	33,537.545		87,256.906
7. Miscellaneous	59,456.813		412,951.411
Total....	Y 5,002,459.049		Y 7,540,656.717

LIABILITIES

	1st WORKING HALF-YEAR (*April-Sept. 1907.*)	DR	2nd WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Railway Expenditures.	Y 2,757,446.446		Y 3,344,168.420
2. Mine Expenditures....	348,251.072		582,963.309
3. Harbour Expenditures.	63,624.343		496,526.229
4. Hotel Expenditures.	32,025.735		58,194.457
5. Electric Work Expenditures... ..	39,307.403		61,930.175
6. Land Expenditures.	85,730.665		165,275.457
7. General Expenditures.	688,899.026		708,731.794
8. Debenture Redemption Fund.	58,578.000		8,578.5000
9. Interest on Debentures	....		976,300.000
Total.....	4,073,862.690		6,452,667.841
Net profit.	928,596.359		1,087,988.876

COMPARATIVE SEMI-ANNUAL STATEMENT OF ASSETS & LIABILITIES

Assets

	1st WORKING HALF-YEAR (*April-Sept. 1907.*)	2nd WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Uncalled Capital......	Y 18,000,000.000	Y 18,000,000.000
2. Properties taken over from the Government of Japan.......	100,000,000.000	100,000,000.000
3. Capital Expenditures.	4,513,325.415	14,048,757.648
4. Stores.......	2,021,887.525	13.796,971.252
5. Coal in stock.	144,765.398	138,744.713
6. Ground & Buildings of Tokyo Branch office.......	183,731.250	633,731.250
7. Difference between Face Value & Issue Price of debentures......	2,928,900.000	2,928,900.000
8. Suspension %	646,200.755	1,434,322.690
9. Sundry Debtors........	175,076.349	809,046.677
10. Workshop %.	125,046.955	124,876.111
11. Deposits.....	5,007,712.688	13,416,661.310
12. Cash on hand	122,062.348	144,099.096
13. Unpaid Debentures...	28,117,440.000	....
14. Postal & Revenue Stamp %..	....	3,420.000
Total.....	Y161,986,148.683	Y165,449,530.967

Liabilities

	1st WORKING HALF-YEAR (*April-Sept. 1907.*)	2nd WORKIN HALF-YEAR (*October 1907 March 1908.*)
1. Capital Authorized...	Y200,000,000.000	Y200,000,000.000
Capital Subscribed....	120,000,000.000	120,000,000.000
2. Legal Reserve Fund...	22,705.890	69,135.710
3. Unclaimed Dividends.	6,675.120	5,372.130
4. Debentures..	39,052,000.000	39,052,000.000
5. Debenture Redemption Fund.	58,578.000	117,156.000
6. Guarantee Deposits ..	1,935.600	260.000
7. Suspension %	635,257.232	2,931,281.977
8. Sundry Creditors.....	896,659 803	873,379.544
9. Special Reserve Fund	....	200,000.000
10. Land Rent %	....	5,696.082
11. Savings Deposits.....	....	181,353.410
12. Brought forward from last half-year.......	383,740.679	925,907.218
13. Balance Profit & Loss %	928,596.359	1,087,988.876
Total.....	Y161,986,148.683	Y165,449,530.947

SEMI-ANNUAL TRAFFIC RECEIPTS & EXPENDITURES

(SEPT. 1907-MCH. 1908)

RECEIPTS

	MAIN LINE ANTUNG	MUKDEN LINE.
1. Passenger Traffic.......	Y1,707,046	Y91,550
2. Goods Traffic...........	3,795,977	77,145
3. Miscellaneous...........	3,683	60
Total...............	Y5,506,796	Y168,755

EXPENDITURES

1. Maintenance..........	Y 815,502	Y 149,204
2. Operation..............	1,465,514	172,170
3. Traffic.................	673,576	68,202
Total...............	Y2,954,592	Y 389,576

COMPARATIVE STATISTICS OF OUTPUT OF FUSHUN COAL

MONTHS	QUANTITIES MINED	QUANTITIES SOLD	QUANTITIES CONSUMED BY CO.
Oct. '07.............	23,525	1,637	12,970
Nov. '07............	21,883	7,286	8,833
Dec. '07............	24,934	3,033	9,489
Jan. '08............	23 374	6,919	12,110
Feb. '08............	17,635	7,082	18,247
Mch. '08............	27,082	13,674	24,093
Apr. '08............	27,802	5,748	21,033
May '08............	31,425	7,623	19,512
Jun. '08............	33,504	10,079	30,402
Jul. '08............	37,048	10,107	36,807
Aug. '08............	34,476	8,847	20,884
Sept. '08............	40,274	14,314	23,624
Total........	342,962	96,349	238,004

PARTICULARS OF THE RAILWAY AREA

AREA OF THE RAILWAY ZONE

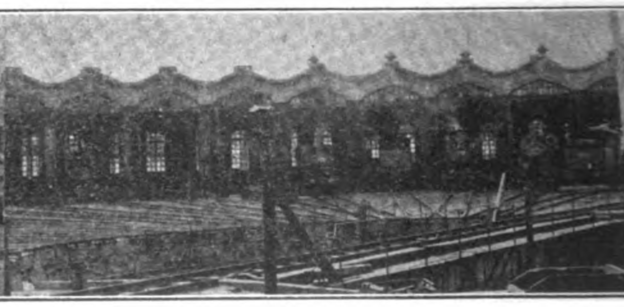
1. Within the Leased Territory.	6,637.671	"tsubo."*
2. Along the Main Line outside the Leased Territory.......	40,107,477	"
3. Along the Yingkou Branch Line..................	1,790,102	"
4. Along the Fushun Branch Line..................	528,797	"
5. Along the Antung-Mukden Light Railway Line......	1,522,350	"
6. The balance scattered over a number of places along the Lines................	3,585,315	"
Total..................	54,171,712	"

LAND AND BUILDING AREA RENTED

1. The total area of land rented out at the end of July, 1908..................	12,814,083	"tsubo."
2. The total building area rented out at the end of July, 1908..................	[12,171	"

*A "Tsubo" represents 36 square feet.

SOUTH MANCHURIA RAILWAY STATION AT NEWCHWANG



S. M. RY. ROUND HOUSE AT LIAOYANG

SOUTH MANCHURIA RAILWAY EXPRESS TRAINS,

composed exclusively of the Pullman Dining, Sleeping, and 1st Class Cars, are operated Semi-Weekly as follows:

FOR EUROPE

DAIREN

Sunday—Arr. about 6 a. m. by S.S. "Kobe-Maru" from Shanghai.

Monday and Friday.—Dep. 8 a. m.

CHANGCHUN

*Tuesday and †Saturday.—Arr. 5 a. m. South Manchuria Ry. Dep. 5.40 a. m. Chinese Eastern Ry. for Harbin).

FROM EUROPE

CHANGCHUN

§Tuesday & ‡Saturday.—Arr.7. 30 p. m. (C. E. R. from Harbin.) Dep. 8.40 p. m. (S. M. R.)

DAIREN

Wednesday & Sunday.—Arr. 6.15 p. m.

Monday.—Dep. Noon. (By S. S. "Kobe-Maru" for Shanghai).

FARES:

	1st Class	2nd Class	3rd Class
Single Trip.........	-Y-40	-Y-25	-Y-10
Return Trip........	-Y-64	-Y-40	-Y-20

How to take the quickest route from Europe to the Far East.—Suppose you take the Wagons-Lits train leaving Moscow every Wednesday and due at Harbin at 7.35 a.m. on the following Saturday.

8 hours and 25 minutes later, you will start for Chang-chun (Kwanchengtzu) Junction of the Russian and the Japanese Lines, reaching there at 7.05 on the same evening, in time to be transferred to one of our Semi-Weekly Express Trains composed exclusively of the Pullman Sleeping, Dining, and 1st-class Cars, leaving Changchun on Tuesdays and Saturdays.

Leaving Mukden 25 minutes later, you will reach Dairen at 6.15 on the same evening, to put up, if you are so minded, at the Railway Hotel "Yamato" which is gaining in favor with the travelers for its irreproachable service and attention.

The passenger steamer *Kobe-Maru*, sailing from Dairen at noon every Monday, will take you to Shanghai on Wednesday.

TIME AND MONEY REQUIRED EN ROUTE (FROM EUROPE.)

MOSCOW-SHANGHAI.

Moscow-Changchun—11 days

1st class—Rbls. 282 2-5, including Sleeping Berth fee.

2nd class—Rbls. 184 3-10.

The Harbin-Kwangchengtzu Russian Section runs no Sleepers.

Changchun-Dairen—21 hours

1st class—-Y-39 9-20.

2nd class—-Y-13 ¾.

Including Express Extra and Sleeping Berth Fees.

Dairen-Shanghai—2 days

1st class—-Y-40, single trip (return trip -Y-64.)

2nd class—-Y-25, single trip (return trip -Y-40.)

Nearly—15 days.

IMPERIAL RAILWAYS OF NORTH CHINA.

	1st Class	2nd Class
Mukden-Peking........	Mex $31.30	Mex. $19.60
Mukden-Yingkou......	Mex. $9.80	Mex $6.15

The Chinese Expresses connect with our own at Mukden and take about 26 hours between Mukden and Peking.

From the Far East to Europe.—Peking-Moscow.

Dep.—Peking, 5.30 p. m., daily, by Imperial Railways of North China.

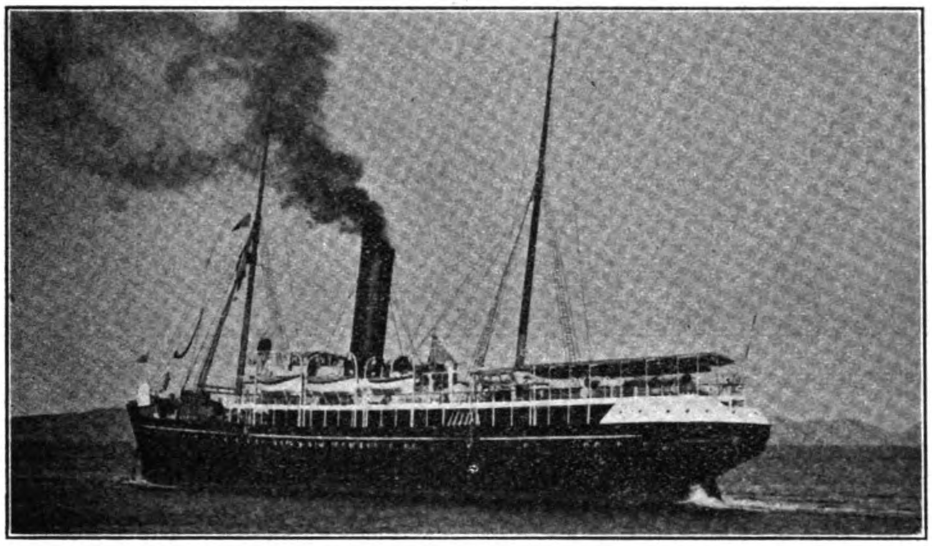
Arr.—Mukden, 6.45 p. m., on the second day.

Dep.—Mukden, 8.20 p. m., on Mondays, by South Manchurian Express:

Arr.—Changchun, 5 a.m., Tuesdays.

Dep.—Changchun, 5.40 a.m., Tuesdays, by Chinese Eastern Railway.

Arr.—Harbin, 4.10 p.m., Tuesdays.



SOUTH MANCHURIA RAILWAY S. S. KOBE-MARU ON SHANGHAI DALNY RUN CONNECTING WITH S. M. EXPRESS

Dairen-Shanghai Steamer Service.—Passage tickets are on sale and berths may be reserved at the principal Stations of South Manchuria Railway and also at the agencies of the International Sleeping Car & Express Trains Company and also Messrs. Thos. Cook & Son in Europe and the Far East, for the fast passenger steamer *Kobe-Maru* (2,877 tons) carrying a duly qualified surgeon on board, on the Dairen-Shanghai steamer service.

Leaving Dairen—Mondays at noon, and

Arriving Shanghai—Wednesdays.

Leaving Shanghai—Fridays,

Due at Dairen—Sundays, in early morning generally.

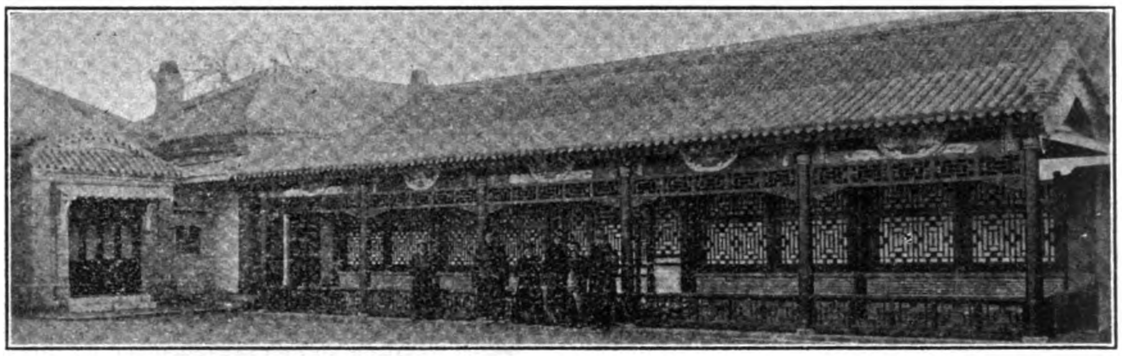
*It connects with the International Train de Luxe, leaving Harbin for Moscow every Tuesday.

†It connects with the Russian State Express, leaving Harbin for St. Petersburg every Sunday.

§It connects with the Russian State Express from St. Petersburg for Vladivostock, leaving Harbin every Saturday.

‡It connects with the International Train de Luxe from Moscow for Vladivostock, leaving Harb.n every Saturday.

The Saturday Express will depart from Changchun at 8.40 p.m., just like the other, and is due at 5.40 a.m. next morning (Sunday) at Mukden Junction for Tientsin and Peking via Shanhaikwan on the Imperial Railways of North China.



SOUTH MANCHURIA RAILWAY'S TOWN OFFICES IN MUKDEN

TYPE OF BARRACKS FOR RAILWAY GUARDS AT MUKDEN

Dep.—Harbin, 6.25 p.m., Tuesdays, by Russian State Express:

Arr.—Moscow, 7.10 p.m., Thursdays week, Russian State Express.

Harbin-St. Petersburg.—The other Weekly Rusian State Expresses leave Harbin for St. Petersburg, on Sundays, at 6.25 p. m., the 1st class fare being Rbls. 298.95, including Express Extra and Berth fees, except Harbin-Kwangchengtzu Section, which runs no sleeping cars.

This trip takes in all 235 hours a little less than 10 days.

St. Petersburg-London.—The Expresses leaving the Russian Capital at 6 p. m. will land you in London, at 10 p.m. of the third day, taking about 53 hours and about Rbls. 98 for the fare.

THE ANTUNG-MUKDEN RAILWAY

Shortly following the occupation of Antung by the Japanese forces on May 1, 1905, owing to the almost impassable character of the mountain roads in this region and the necessity of facilitating a more rapid movement of supplies, the construction of a light railway was begun by their engineer corps and its extension continued with the advance of the army as far as Shichiaotzu, a point about 30 miles to the southeast of Mukden. The country to the north and west of Shichiaotzu, drained by the Taitzu River, a tributary of the Hun Ho, being quite level and ordinary methods of transportation comparatively easy, this point was made the terminus of the railway until August, 1906, when the Okuragumi, a large Japanese concern, received from the military authorities a contract to extend it to Mukden. The construction of this section, covering a distance of 33 miles, was finished in less than one and one-half months.

While the railway follows practically the same route as when first laid, considerable grading has since been done, unsafe wooden bridges have in several places been removed and the gullies filled in with crushed stone, and at a few points the distance has been shortened and crossing over the mountains made less dangerous by cutting through ledges. The work of improving the road is still going on, gangs of Chinese workmen, each under a Japanese foreman, are scattered along the entire distance, and ties as well as other railway materials seem to form the bulk of the freight at present handled. No tunneling has yet been done and probably will not be until the survey of the permanent railway has been completed.

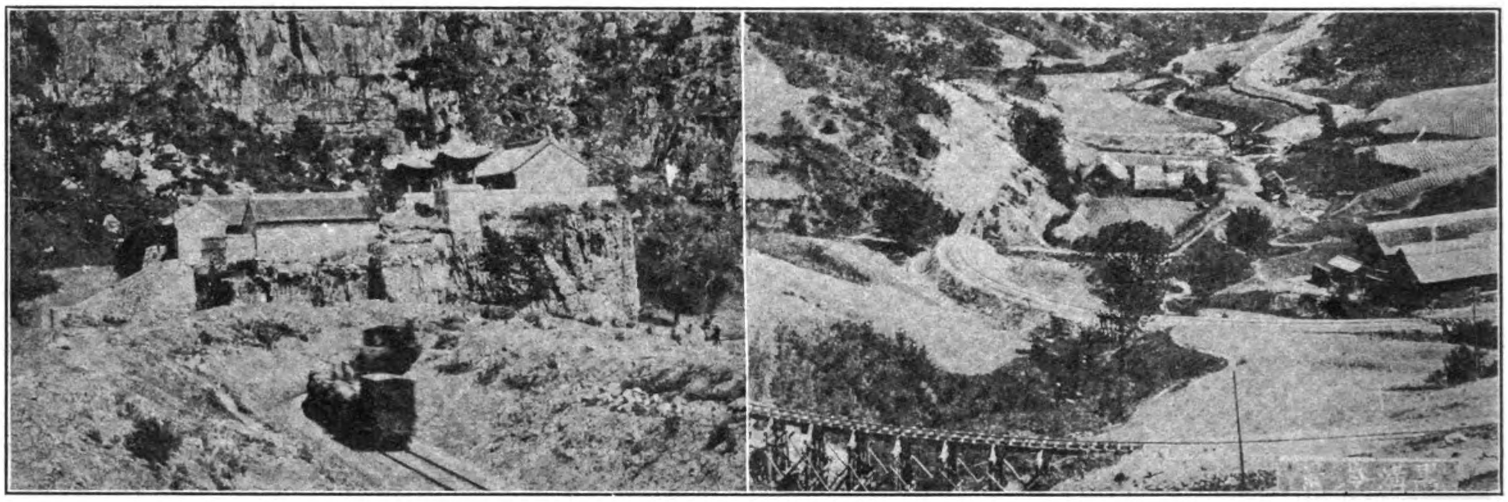
Wherever it could be done without making the route excessively circuitous, the road has been constructed side by side with river-beds, sometimes following a comparatively straight line and again winding among the mountains. There are four points at which the line crosses the tops of the mountains and where the trains either circles around the spurs or moves from side to side after the manner of a heavy-laden team going up or down a hill. At one place the line recrosses itself in parallel tiers one above the other as many as five times. Frequently the steep grades (1 in 30), the sudden turns and unstable wooden bridges follow one another in such a manner as to make the descent especially dangerous. Accidents are said to have been of very frequent occurrence formerly, but improved grading with crushed stone and more careful methods of operation have greatly lessened their number.

The gauge is 2 feet 6 inches. The rails as well as the rolling stock, including locomotives and trucks, were supplied by the Baldwin Locomotive Works. The system possesses altogether 150 locomotives, 100 of these being of 16 and the remainder of 11 tons. The freight cars are all open and similar to those used for hauling sand in America. There are two sizes, one with a capacity of 2, and the other 5 tons. The entire carrying capacity of the railway is only some 1,200 tons. Besides these open cars there are a number with tops and designed especially for the passenger traffic. At both Antung and Mukden there are several wooden buildings, which were once used for the storage of military supplies but at present seem in large part to be lying idle. The intermediate points also have storing facilities, used principally for the supplies of the railway employes, as well as substantial buildings of Chinese architecture for stations and the dwelling-houses of the railway officials.

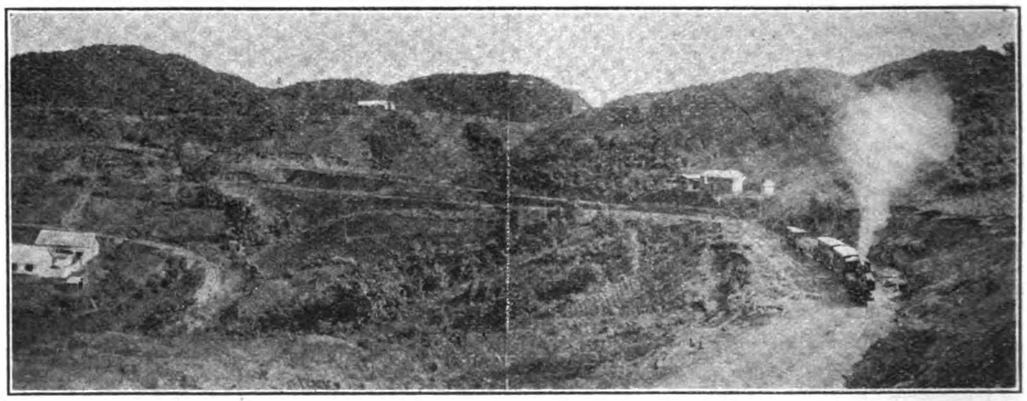
The line was formerly under the control of the military authorities until its transference to the South Manchuria Railway Company, in December of 1908.

The line was opened to general traffic, both freight and passenger, in August, 1908. Two schedule-time runs are daily made from each end in addition to more or less regular ones between some of the intermediate points The journey from Antung to Mukden requires two days. The through trains both leave in the morning, one at 6 o'clock and the other at 9, and reach Tsaohohu (Sokako) 12 hours later. Operation after dark would of course be subject to a great deal of risk, so that passengers are obliged to pass the night at this point, resuming their journey on the following morning at the same hours as before. Tsaohohu is not at all a suitable place to recover from the day's fatigue. It has a number of Chinese inns and one in Japanese style, neither particularly inviting to the foreigner. The traveler must bring his luncheon with him to Antung, as neither food nor drink can be secured until reaching Tsaohohu, and unless he is sure of satisfying his hunger with *cuisine japonaise*, which is all that is to be had here, he should equip himself at Antung with two days' subsistence.

At present, however, the importance of this railway as a channel of immigration is slight and even with improved accommodations it can give but little encouragement in the region traversed by it to Japanese colonization or the small commercial enterprise so characteristic in parts of Manchuria more easily accessible. Indeed, there is nothing perhaps except the spirit of adventure which would induce the

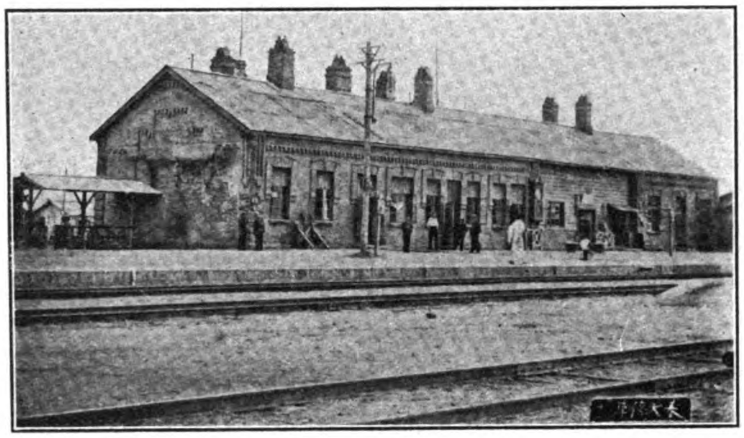


VIEW OF ANTUNG-MUKDEN RAILWAY



BLACK MINE PASS ON THE ANTUNG-MUKDEN RAILWAY

merchant, prospector or immigrant to avail himself of this route for reaching interior Manchuria. The train leaving at 9 o'clock consists entirely of freight-cars. Two or three of these may be loaded with freight, but the most of them are intended for passengers, who clamber into them pell-mell and struggle among themselves for squatting room. The discomfort of traveling in this manner during a heavy rain or a cold north wind can readily be imagined. The earlier train has attached one or two of the passenger-cars already mentioned. These, however, are not any more comfortable to sit in than the freight-cars and preferable to them only in affording shelter from inclement weather. In fact, the experience of traveling by this route probably helps one to form a good picture of what the railway was in its early days and the distance, 187 miles (100 as the crow flies), is undoubtedly the greatest covered by a line of its kind. The average speed is about 9 miles an hour, although as high as 12 miles is reached on the level.



MUKDEN STATION OF THE SOUTH MANCHURIA RAILWAY

As already stated, the greater part of the freight handled consists of railway supplies. The amount of general goods carried is almost too small to be considered, and the supposition that the absence of a custom house at Antung has been taken advantage of to ship large quantities of merchandise into the region made accessible by this railway is not borne out by the actual conditions. The rate, 10 sen (5 cents) a ton per mile, for most commodities is so high as to leave only a small margin of profit and in some cases is entirely prohibitive.

The standard gauge railway to connect Antung with Mukden, it is expected, will follow the same general course as the present one. Since its completion, however, will probably require the larger part of three years, the new company is to continue the operation of the present line, and will undoubtedly carry on improvements and at the same time considerably extend the *modus operandi.* With its present narrow gauge, however, this railway, even when worked to its utmost limit, can give no more than a very small stimulus to the mineral, agricultural, industrial or commercial development of the region which it affects.

RAILWAYS IN NEW SOUTH WALES

The development of railways in New South Wales is referred to by *Hardware and Machinery* and that journal calls attention to the fact that for the third section of the North Coast Railway (Gloucester to Taree), N.S.W., the tender of Rhys-Jones, Carter & Co., Ltd., at £455,365 was accepted. Mr. Surveyor Jamieson is at present engaged surveying the proposed deviation of the railway from Taree northwards, crossing the Dawson River near the bridge at Cundleton. If this deviation is decided upon, it will admit of one station in the lower Manning district being alongside deep water, and willprovide a central railway port at which passengers may entrain, and at which produce may be shipped from river passenger and cargo steamers. The deviation, it is claimed, also provides better grade than the route originally surveyed, and is less expensive.

The Gloucester-Taree Railway, above referred to, is the most important work of the kind undertaken in the State for many years. Apart from the fact that it will form a link in a great railway system, it is estimated that it will provide constant work for about 1000 men for nearly three years. The section will have a length of about 44 miles, and under their contract the successful tenderers have three years in which to complete the job. The section embraces some of the heaviest work on the whole line, and a great many streams have to be spanned. Tenders for the necessary steel bridges were accepted some time ago, and the contract for the building of the section provides for the delivery of the bridges at Darling Harbour, their conveyance to the different sites, and the erection of the structures. There are two or three tunnels on the line, but none of them are of great length. The earthworks, however, are very heavy. Five tenders were received, and it is a remarkable fact that never in the history of railway construction in the State has the competition been so keen. The tendering was done on the schedule basis and the lowest tender received was very close to the departmental estimate, while a sum of only £9000 separated the four lowest tenders, a sum that is insignificant in comparison with the amount of the contract.

The Parliament of New South Wales has referred to the Public Works Committee the proposal for constructing a line of railway from Moree to Mungindi. The line will be 66 miles long, and the estimated cost is £285,889. The committee has also been asked to report upon the expediency of constructing a line from Coramba to Dorrigo. In introducing the matter, the Minister said the country was very precipitous, and could be developed only by means of a railway. Although the route was only 37 miles long, the estimated cost of a line of standard gauge, grade, and curves was £667,158. It would be possible, he said, to use Shay engines on a line of the standard gauge, but with sharper curves and steeper grades. The estimated cost of such a line would be £230,000. A further estimate had been made of a line with a narrow gauge, and the same curves and grades that would be used on the Shay line, and the cost of such would be £190,560. The Government had, however, decided to preserve the standard gauge, and to adopt the Shay system. It was also resolved to refer to the Works Committee proposals for the duplication of the Great Western line from Emu Plains to Blaxland; for the making of a deviation of the South Coast railway line between Waterfall and Otford; for the construction of a line of railway from Hermidale to Nymagee; of a line from Perak Hill to Parkes; of a line from Bega to Eden; of a tramway from Bomaderry to Jervis Bay; of an electric tramway from Military-road, North Sydney, to Cremorne Point, and of an electric tramway from Waverley to Bronte.

TIN MINING COMPANIES

Reviewing the history of the tin mining companies of the F. M. S. the *Malay Mail* directs attention to their respective standing in the share list and says:

"Of 27 tin mining companies, it appears that only 11 have ever paid a dividend. With one exception the remaining 16 companies were formed in 1906 or 1907, so it is evident that the investor in mining shares must be prepared to wait for some little time for dividends. The one exception is Rahman Tin, a 1905 company, but we fancy this concern must be paying, as the selling price of the £1 shares is $15. Of the dividend paying mines five have their shares quoted above par and six below. The lucky five are the Gopeng Tin Mining Co., New Gopeng Mining Co., Kinta Tin Mines, Tronoh Mines, and Bruseh Hydraulic, all of which have paid a dividend or interim dividend in 1908 except Tronoh, which paid a 25% dividend in 1907. Of the remaining six one paid a dividend of 57½% in 1903 and the $10 shares are now quoted at $1. Another paid 35% interim dividend in 1907 and holders are willing to sell their $10 shares for $4. A sterling company formed in 1904 paid 45% for year ending 30.6.07 and the £1 shares are now worth $3.25 in the market. A dollar company formed in 1903 paid 10% for the year ending 31.3.08 and it appears that the buying public value the $10 shares at $7, and so the story goes on.

"A perusal of the general list is more encouraging as regards the regularity of the dividend and the value of shares in those cases where dividends are earned at all.

"But when we look at the output for December we find that two of the companies which have not paid a dividend yet come second and third on the list to Tronoh which remains the greatest producer; whilst the fourth place belongs to the company whose £1 shares range between $3 and $4: yet this company had an output far in excess of the 1908 dividend payers. We do not know, however, how much of this is tribute work. The capital of this company is larger than that of the dividend payers but even when comparing capital and output it is difficult for the investor to arrive at any decision as to the best investment. An Investor's Guide giving the history of each company up to date and some general remarks on the present and future prospects of the mine would be a welcome addition to local literature."

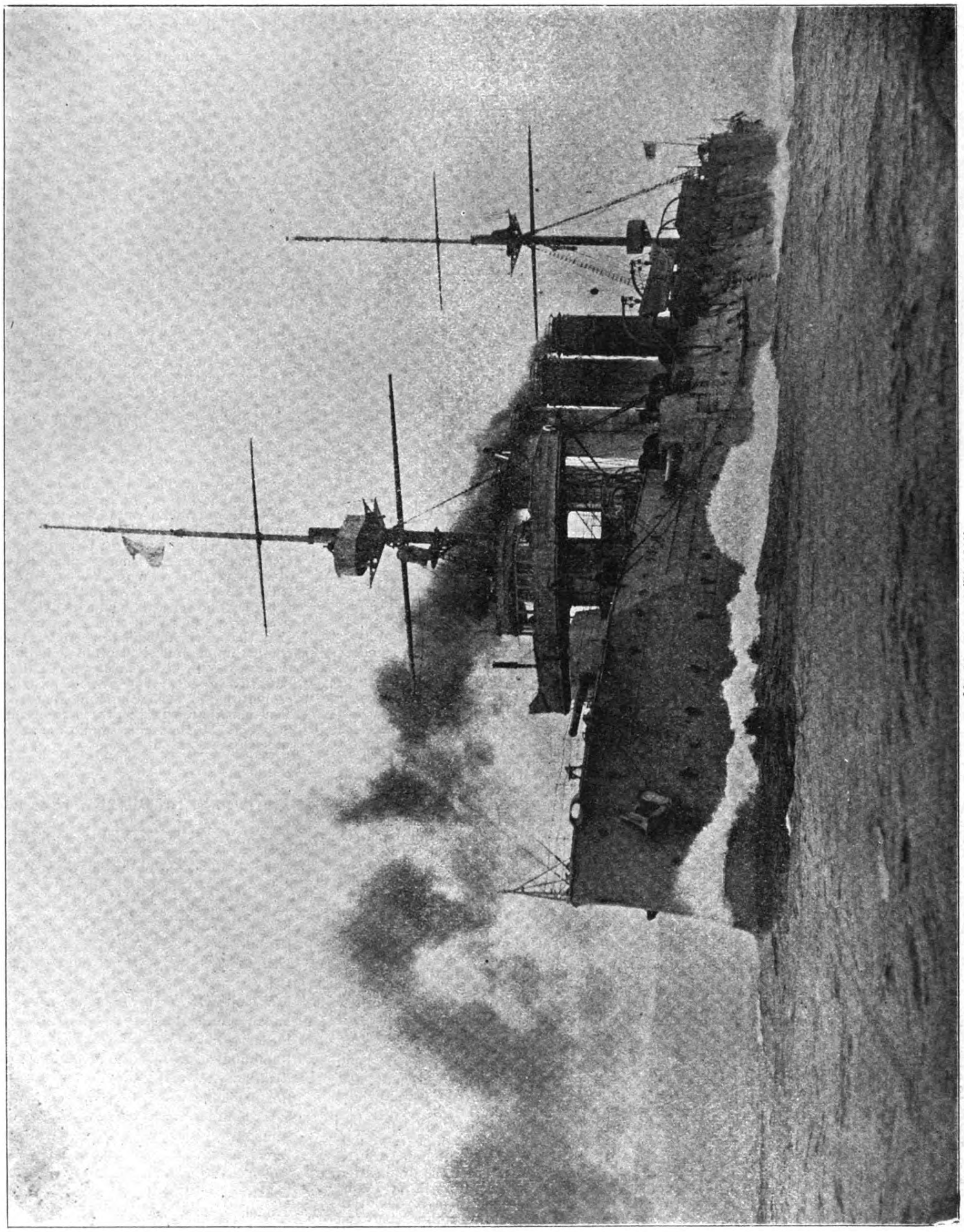
F. M. S. TIN OUTPUT, FEB. 1909

	Piculs.
Belat	382
Bruseh	270
Gopeng	495
Kanaboi	155
Kinta	330
Kledang	405
Kuantan	52
Lahat	909
New Gopeng	80
Pahang Consolidated	1,060
Pusing Lama	484
Rambutan	290
Redhills	475
Royal Johore	38
Salak South	239
Sempam	61
Serendah	315
Sipiau	106
Tekka	390
Tronoh	1,343

GOLD OUTPUT

Oriental Consolidated for January, value $122,912 gold.

Raub Australian Gold Mning Co. for February, .1225 oz. smelted and 123 oz. cyanide.



H. M. S. "ANTRIM"

First Class Cruiser—Displacement, 10,720 Tons; I. H. P. 22,000; Speed, 23 knots.

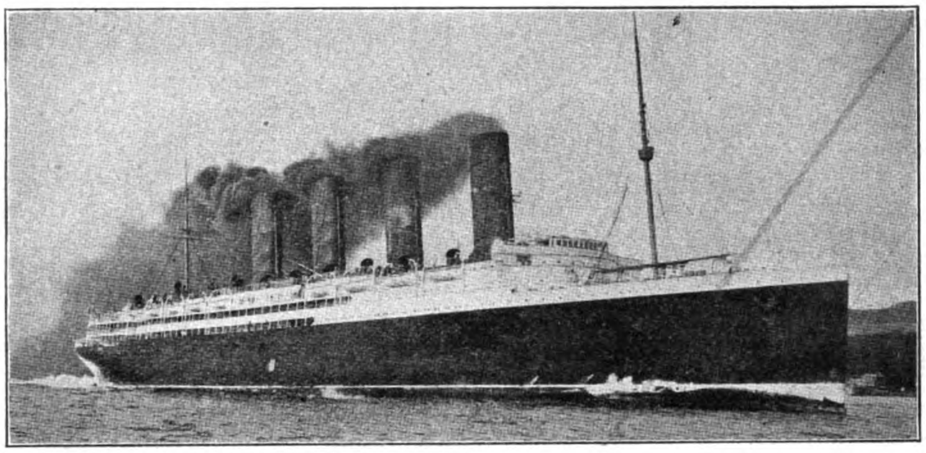
(BUILT BY JOHN BROWN & COMPANY, LTD., CLYDEBANK, SCOTLAND)

JOHN BROWN & COMPANY, LIMITED

BUILDERS OF BIG SHIPS

Founded between fifty and sixty years ago, John Brown and Co., by enterprising development and judicious combination, have now evolved an organization so comprehensive that they can produce, complete for service, every type of warship and merchant vessel, with all accessories. The Atlas Steel Works at Sheffield, which date from 1854, produce the iron, steel, armour and the many castings and forgings necessary for all vessels. The Clydebank Shipyard, constructed in 1873, and acquired by the company in 1899, has built a long succession of warships of varied design for many navies, and some of the finest examples of high-speed passenger steamers in successive epochs in the history of naval architecture. The Norfolk Works, at Sheffield, of Messrs. Thomas Firth and Sons, Limited, became practically, although not nominally, allied with John Brown and Co., Limited, in 1903; and as they have made castings for turbine machinery a special study, and have long been noted for their projectile and ordnance forgings, they contribute in an important degree to the general efficiency of the company. Still later the company acquired a large interest in the Coventry Ordnance Works, Limited, in association with Messrs. Cammell, Laird, and Co., Limited, and the Fairfield Shipbuilding and Engineering Company, Limited; and are thus in a position not only to build the hull with its armour, and to construct all the machinery, but to supply the armament and projectiles, of all types of warships. This year the company became allied to Messrs. Harland and Wolff, Limited, of Belfast, by an exchange of shares; and although the two shipbuilding works will continue to be separately managed, the interchange of experience must be a great advantage, and must influence progress in steam construction, apart altogether from financial benefits, with which we are not here concerned.

The Atlas Works.—In dealing with the establishments of the company and their work, we may take, first, the Atlas Works, Sheffield. The greater part of the 36 acres within the boundaries of these works are covered with buildings. There are in the works forty-three furnaces for producing the iron and other metals used in the various processes of manufacture, which necessitate the use of 400 tons of coal and 100 tons of coke each day of the year. There are ten hydraulic presses, including one of 10,000 tons power, and thirty-three steam-hammers, some of them 80 tons in weight, to work the hot ingots down to the approximate form of the finished product. For manipulating heavy weights there are ninety-four travelling-cranes, two of them having a capacity of 150 tons, one of 100 tons, and most of the others 50 to 60 tons; in addition there are fourteen locomotives in the works, for conveying the products from one shop to another on the many miles of railway running like a network through the establishment. There are 307 machine-tools, many of them of great power, for planing, turning, boring, and otherwise shaping the forgings and castings to finished dimensions. These tools are driven by prime movers developing an aggregate of 12,000 horse-power, which is transmitted to the tools largely through the medium of electricity.

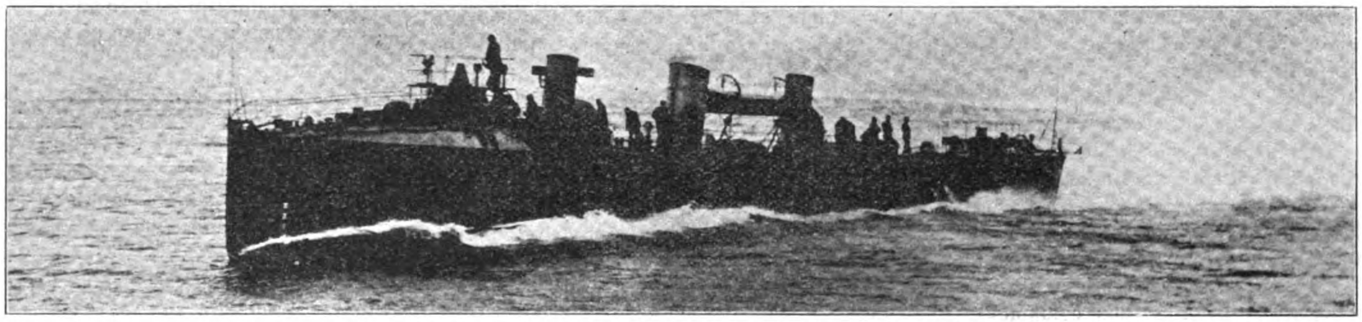


S. S. LUSITANIA, BUILT BY JOHN BROWN & CO., LTD.

Although the area occupied by the Atlas Works at Sheffield has increased twelvefold since the works were first commenced, the actual turnover of the company has multiplied one-hundred-fold—from 30,000*l.* to 3,000,000*l.* sterling per annum. This fact in itself affords a clear evidence of the beneficial influence of modern mechanical methods. The output fifty years ago probably did not exceed 5,000 tons per annum, whereas to-day it is close upon 100,000 tons. The 20,000 workers employed in all the works of the company earn in wages about 1,250,000*l.* per annum.

The Manufacture of Armour.—Messrs. John Brown and Co., Limited, were among the first firms to manufacture steel; first by puddling, next by the Bessemer process, and finally by the Siemens-Martin furnace. Bessemer found in the firm his first practical collaborators, and this greatly helped to overcome the prejudice then existent against his process. The firm, too, were among the first to manufacture steel for shipbuilding; but a greater step forward, and one of national importance, was the commencement of the manufacture of armour-plates. This was in 1859, when the first armoured ships of the British Navy—the Warrior and Black Prince—were laid down. Instead of adopting the practice of hammering the metal in the plate form, as had been usual for many years for all armour, Messrs. John Brown and Co. put down a mill and rolled the plates, first by the welding of a succession of bars together, and, later, by the use of large ingots. The wrought iron armour was adopted for all ships for several years, the thickness increasing from the 4½-in. plates of the Warrior to the 14-in. plates of the Dreadnought of 1875; although the Inflexible, in 1881, had a double plating, making 24 in. in all.

About the year 1877 guns had so increased in power that it was considered impossible to produce a wrought-iron plate, which, while of reasonable thickness, could withstand the attack from the later 80-ton guns, and the compound plate then came to the front. This was a plate with a steel face and a wrought-iron back (the former representing about one-third of the total thickness), which, under the patent of the late Mr. John Devonshire Ellis, for so long the chairman and managing director of Messrs. John Brown and Co., were united by a process designed to ensure not only a perfect weld, but a comparatively hard face—an important feature entirely lacking in the wrought-iron armour. This face offered so much initial resistance that the projectiles of the time were broken up, or if they struck at an angle, they glanced off. The all-steel plates, introduced about the same time, offered, perhaps, equal resistance to attack, but lacked toughness, which in the case of the compound plate was supplied by the iron back. As the steel plates were thus more liable to break up, compound plates continued in use where thick armour was required.



H. M. S. TORPEDO BOAT DESTROYER "ROCKET," "SHARK," etc.
Displacement, 280 tons; I. H. P., 4150; Speed, 27½ knots.
BUILT BY JOHN BROWN & CO., LTD.

(Cunard Turbine Steamer "CARMANIA") (H. M. S. "ANTRIM") (H. M. S. "HINDUSTAN")

FITTING-OUT BASIN—CLYDEBANK SHIPYARD.
JOHN BROWN & COMPANY, LIMITED.

As far back as 1871, the idea had occurred to the late Mr. J. D. Ellis of applying to iron armour the principle of cementation; and a patent having been applied for, a plate so treated was subjected to firing test. The result, however, was not encouraging, owing to the omission of chilling treatment, which at that time was thought impracticable in the case of such large masses as armour-plates. The patent was, therefore, allowed to lapse, and nothing further was done for the perfection of cemented armour at that time. In 1901, however, Captain Tresidder, a director of Messrs. John Brown and Co., devised a method of chilling armour-plates, for which various British and foreign patents were taken, in the specifications of which mention was made of the suitability of the process for giving dead hardness to the face of any plate where high carbon was present, whether the face was separately made, as by the Ellis compound process, or super-carburised by cementation, as tried by Mr. Ellis on the occasion above referred to.

In connection with this important development in the process of hardening armour, we have further instances of the many cases wherein scientists in different parts of the world work simultaneously, without knowledge of each other's research, towards the same end with similar issue. Harvey, an American engineer, had been experimenting contemporaneously with Captain Tresidder to produce a cemented and chilled plate, and there was one day between the respective applications for patents—the one in America, and the other in England. The, Sheffield inventor's date was the earlier; but ultimately, after much negotiation and consulting of lawyers, forces were joined for commercial reasons. This combination of the cementation and chilling processes marked a great advance: a 7-in. plate so treated being a match for a 6-in. shot of 100 lb. striking with a velocity of 1950 foot-seconds; whereas formerly it required a thickness of 10½ in. of all-steel or compound armour to meet this attack.

There was a general feeling, soon after this plate was adopted, that some degree of finality had been reached; but Messrs. Krupp, of Essen, sprang a surprise upon all by perfecting a process whereby an all-steel plate made of excessively high-grade material could, by an elaborate course of treatment, be endowed with not only a face as hard as glass, but also a back as tough as, and much stronger than, wrought iron. The Krupp plate is the plate of to-day; and some idea of its immense resisting power will be formed when it is stated that it is a match for a blow which would conquer a wrought-iron plate of from two and a-half to three times its thickness. As a matter of fact, plates made by the Krupp process for the broadside of ships seldom now exceed 9 in. in thickness, but for barbettes the usual thickness in first-class ships is 12 in.

The Krupp process was taken up by Messrs. John Brown and Co., and we may indicate briefly its salient features. The material used in the latest plates is a multiple alloy of iron and other metals, and is excessively delicate: so much so, that a large ingot cast from it, if laid down to cool, would almost inevitably fly to pieces. Messrs. John Brown and Co. have their steel furnaces, therefore, close to the hydraulic press. After the steel has been tapped into the ladles, these are hauled along on rails, and raised by an hydraulic lift to higher-level rails, which run over the casting-pit

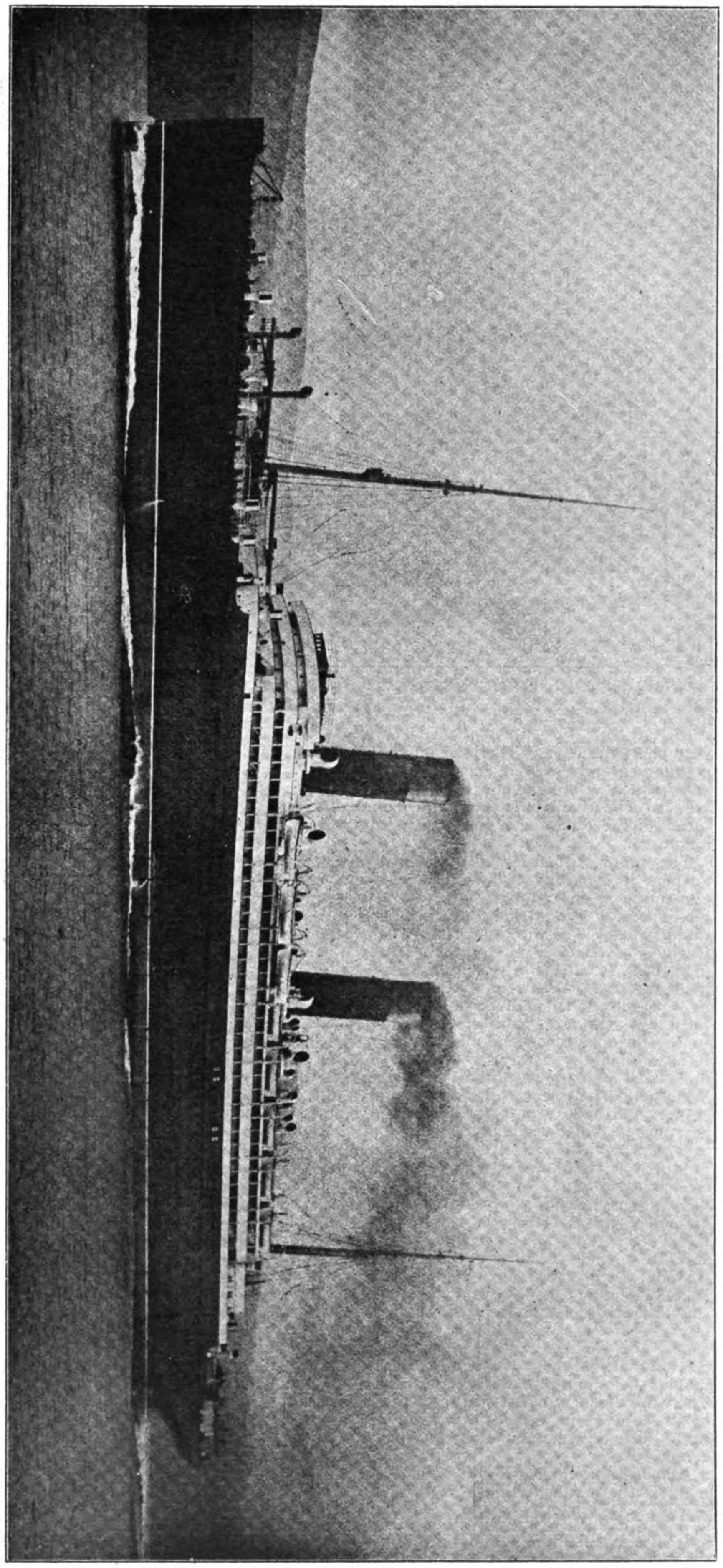
Here the steel is teemed into a trough, and thence direct into the huge ingot-moulds. As its melting-point is so high, it solidifies upon losing quite a small proportion of its heat, so that it can be taken almost at once to the reheating furnace, preparatory to the treatment under the 10,000-ton press. There it is slabbed down to approximate thickness for rolling in the large mill, special steps being taken to remove a peculiarly adhesive scale that forms upon it. During these several operations the plate frequently requires re-heating, and furnaces for the purpose are provided in convenient positions. The plate is not allowed to cool after being rolled, but is at once passed to the re-heating furnace, and when brought to the required temperature undergoes the first stage of special heat treatment peculiar to the Krupp process, which, if properly conducted, renders it extremely tough. This continuity of treatment and care to avoid cooling is not dictated by economical considerations, but is rendered necessary by the sensitive nature of the material. After the heat treatment, the plate is planed and machined to approximate dimensions, and then is passed to one of the sixteen cementation furnaces in the works, where the face becomes chemically harder by absorption of carbon from charcoal, with which its face is kept in contact during a long exposure to high temperature. The plate is further submitted to several heat processes. It is then set, under a 6000-ton bending press, to the approximate form which it will have when fitted on to the ship. Lastly, it undergoes a final heat process, followed by chilling, whereby it acquires an intense face hardness. Any alteration or machining subsequent to this last treatment has to be done with powerful electric grinding-machines, as no cutting tools can make any impression upon the face. The holes in the back for the bolts, which attach the plates to the ship, are afterwards bored and tapped and the plate is then finished and ready for the firing test, or for despatch to the Clydebank or other naval yard.

The appended Table shows the figures of merit for the various types of armour, as constructed by the company in the successive stages of the evolution of armour. This shows the relation of the thickness of the wrought iron that would have been perforated by the attack to that of the actual thickness of the plates fired at. Thus the 6-in. Krupp plate with standsa blow which would have perforated a wrought-iron plate 17 in. thick, or 2¾ times its own thick ness. Therefore, its figure of merit is 2.75.

Quality of Plate.	*Figure of Merit (being Relative Thickness of Wrought Iron to giveEqual Resistance).*
Wrought iron	1
Compound of plain steel	1 20 to 1 25
Harvey	1 9 " 2 2
Krupp	2 3 " 2 8

Heavy Forging Work: Shafting.—As typical of forging work, reference may be made to the shafting made at the Atlas Works. Hydraulic presses have for many years been used at the Atlas Works, to the exclusion of hammers, even for light work, as the gradual squeezing action of the hydraulic press is for all purposes more effectual and less severe on the metal than the sudden blows of a hammer. One of the largest shafts made for a land engine was completed by the company in 1901. It was a crankshaft of over 80 tons weight for the engine of an electric-traction station.

Messrs. John Brown and Co. have several exceptionally powerful presses, ranging from 10,000 tons downwards. The largest press is very rapid in its work, upwards of 25 strokes per minute being easily attainable. The hydraulic pressure is supplied by a three-cylinder high-pressure pumping-engine in close proximity to the press, and working direct without an accumulator. An air vessel is fitted to maintain a constant pressure and supply of water to the suction valves; and thus there is the minimum of noise and vibration, when the engines are running under full pressure at the high rate of 100 revolutions per minute. The periods during which the maximum power is applied to the press are very frequent, owing to the rapidity of its operation, but they are of



TWIN-SCREW STEAMER "CARONIA"

BUILT BY JOHN BROWN & CO., LTD., FOR THE CUNARD STEAMSHIP CO., LTD.

Length (Extreme) 676 Ft. Breadth, 72 Ft. 6 Ins. Depth, 60 Ft. 3 Ins.

Gross Tonnage, 19,600 I. H. P., 21,870 Speed, 19½ Knots.

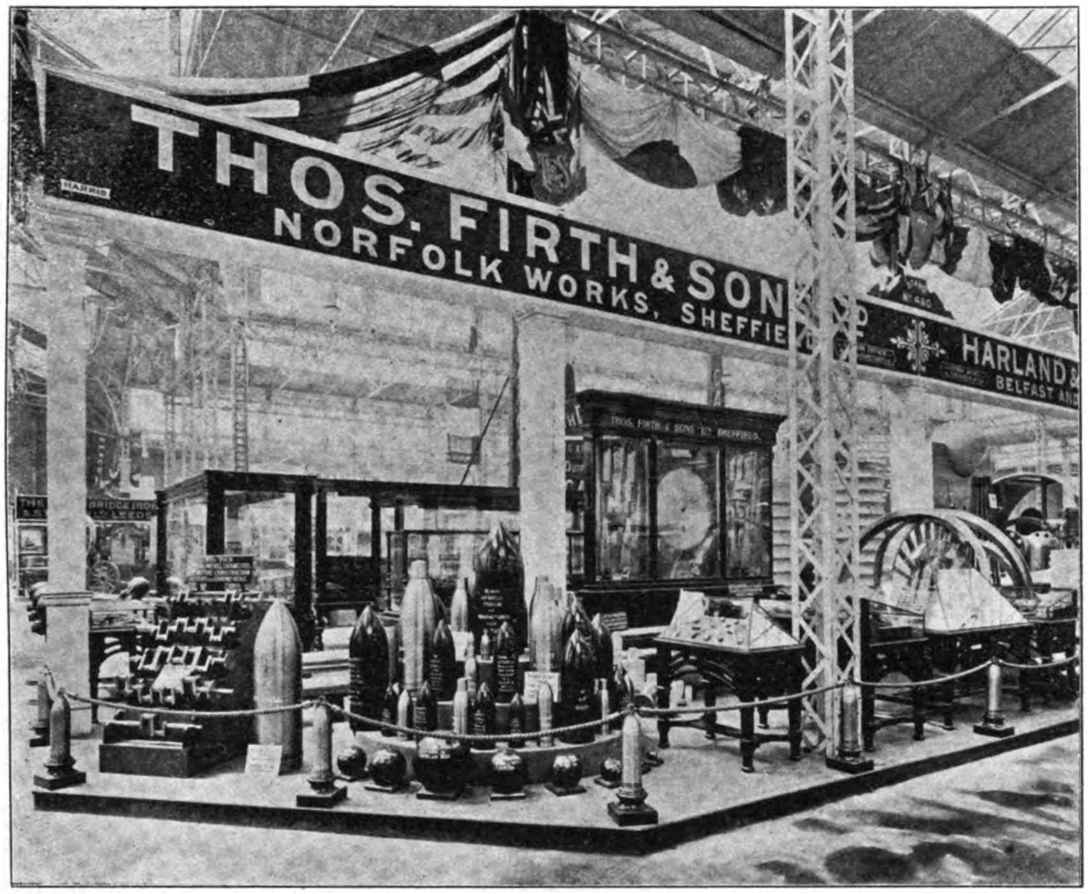


EXHIBIT OF THOS. FIRTH & SONS, LTD., NORFOLK WORKS, SHEFFIELD, ENGLAND, AT THE FRANCO-BRITISH EXHIBITION, 1908.

very short duration. The load on the engines is thus a severely varying one, alike as to degree and frequency; but the governing arrangements are so effective that the influence on the speed of the pumping-engine is reduced to the minimum.

The press is fitted with special hydraulic gushers for working hollow-forgings, such as gun-tubes, cylinder-liners, etc., as with such jobs specially good results are obtained by a rapid stroke. The work of forming such hollow forgings possesses some special features. The ingot-head is cut off in the lathe, and a hole is made through the centre in a horizontal machine by a D-bit. The ingot is then reheated in a furnace at the forge, and afterwards conveyed to the press anvil on the mandril on which it is ultimately to be forged. The forging-press draws the ingot down on the mandril, the job being supported meanwhile from the hydraulic crane. Portions from 5 ft. to 8 ft. in length are thus forged at each heat, and hollow forgings varying in length up to 50 ft. have been produced by the company with very satisfactory mechanical results.

The machine-shop associated with this forging department consists of three bays, two of them 160 ft. long and 35 ft. and 31 ft. wide respectively, while the third is 194 ft. long and 52 ft. wide; the height of 34 ft. enabling the 70-ton travelling-crane to conveniently manipulate the immense jobs undertaken without interfering with the work done on the floor. The shops are well equipped with the heaviest class of machine-tools, nearly all the well-known makers being represented in the department. There are about 15 lathes, varying from a length of 80 ft. by 48 in. centres to a length of 50 ft. by 66 inch centres, and all are triple or quadruple-geared.

Amongst the interesting tools in this department is the crank "pinning" machine. When the Admiralty and some foreign Governments commenced using double-throw crankshafts in large engines, so as to bring the balancing forces of the reciprocating parts as near to each other as possible, with a view of reducing vibration, it was found impossible, in turning the crank-pins in an ordinary lathe, to overcome a certain amount of spring which made it difficult to maintain true centres. A large crank-pinning machine was therefore erected at the Atlas Works at great expense. In this machine the crank, instead of rotating as in the ordinary lathe, lies in a rigid position while the cutting-tool rotates; and thus the pin can be made absolutely round and perfectly true with the axis of the crank in every direction. This splendid tool consists of longitudinal and cross-girders supporting a large frame free to be moved along the girders, and fitted with an internal wheel carrying the tool-boxes. These boxes can be advanced to, or retired from, the crank-pin centre, and at the same time are narrow, so as to be able to work between the crank webs. The crank rests upon, and is bolted securely to, the girders of the machine; while the wheel revolves and the tools operate on the pin and the ends and sides of the web without necessitating any re-setting of the job.

Boiler and Furnace Work.—The firm have taken an equally successful part in connection with boiler shells, flues, and tubes. A special press for flanging boiler-ends was laid down in 1879; and as soon as the Siemens open-hearth process for making steel was introduced, furnaces were put down, and, in addition to the rolling of plates, the casting of propellers, propeller-bosses, and the like was undertaken. The triple-compounding of steam-engines encouraged the use of higher boiler pressures, so that a demand sprang up for heavier shell-plates, as well as for a form of furnace that would offer a greater resistance to collapse than the smooth cylindrical type hitherto used. This led to the production at the Atlas Works, in 1885, of the patent ribbed flue, which proved very advantageous to the marine engineer. The latest form of these furnaces was adopted in the Lusitania, as illustrated on page 30. The plant for the manufacture of these flues includes many specially-designed appliances, the whole aim

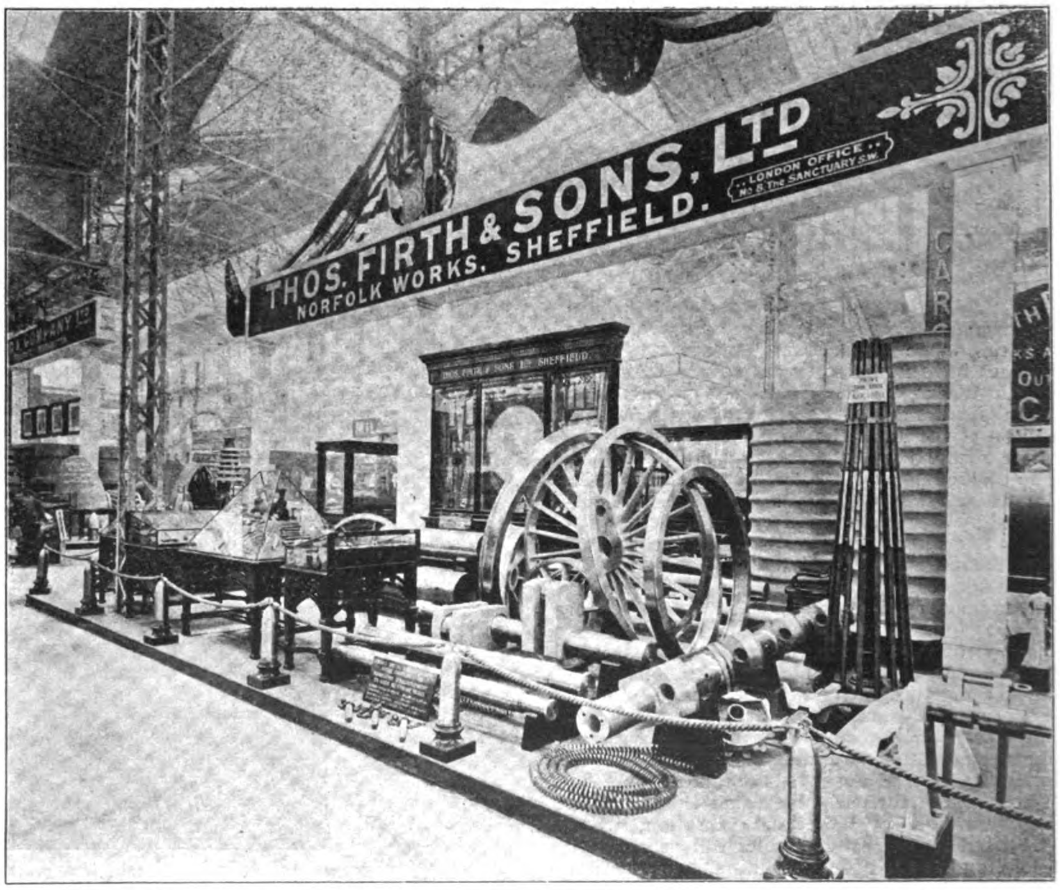
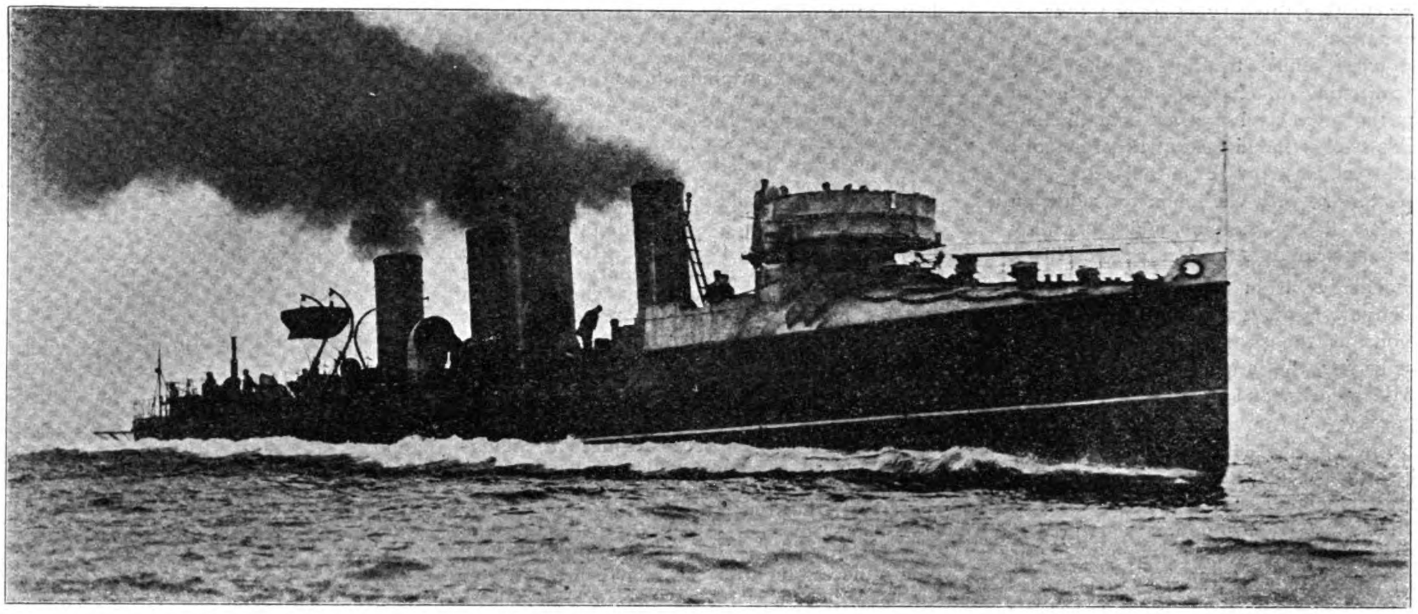


EXHIBIT OF THOS. FIRTH & SONS, LTD., NORFOLK WORKS, SHEFFIELD, ENGLAND, AT THE FRANCO-BRITISH EXHIBITION, 1908.

At the Franco-British Exhibition, held in London in 1908, which was the greatest Industrial Exhibition held since the first International Exhibition of 1851, the manufactures of Thos. Firth & Sons, Ltd., gained the following highest awards:

Railway, Tramway Plant, etc. .... Grand Prize.
Metallurgy, Plant, Processes and Products of Steel and Iron Works ...... Grand Prize.
Armament and Material of Artillery ... Grand Prize.
Naval Engineering .... Grand Prize



H. M. S. TORPEDO BOAT DESTROYER, "ARAB"

Displacement, 380 tons; I. H. P., 8000: Speed, 32 knots.

(BUILT BY JOHN BROWN & CO., LTD.)

being to minimize stress upon the metal and ensure absolute reliability. The ingots are usually cast in such sizes as to enable two flues to be rolled from each; they are slabbed down in the roughing-mill, and the finishing-rolls form the ribs. Two flue-plates are first placed back to back under a slotting-machine, and shaped at the ends to be flanged; this work is done in pairs, so that the plates will form right and left-handed furnaces respectively.

The plates are then bent in an hydraulic press—one of the special appliances of the firm. This machine consists of a table carrying adjustable ribs, on which the part of the plate to be bent rests, while under it are the three cylinders used in the bending operation. A "fuller," or heavy bar, is rigidly fixed to the framework of the machine, but is removable for the withdrawal of the flue when curved. The flat flue plate is placed between the fuller above and the supporting ribs below, and the latter, rising by the application of the hydraulic power, bend the plate in successive widths to a curve, the radius of which is regulated by the distance apart of the supporting ribs and the duration of the pressing action. As soon as the curvature conforms to the template prepared, the pressure is removed, the plate advanced to bring a new portion under the fuller, and the bending operation completed.

Thus formed to circular shape, the flue is taken to the welding machine. The welding machine is a cleverly designed tool. The anvil is carried on one large bracket, the steam hammer over it on another; and arrangements are provided to enable any length or diameter of flue to be supported immediately on the anvil, the position of which is fixed. Thus, for lateral movement, the platform on which the flue is carried can be traversed by means of gear on the rails placed under the floor level. For vertical movement to suit different diameters of flue, the platform, with rails, etc., can be raised or lowered, and for rotary movement side-bearing wheels are fitted to the movable platform. Both of the arms carry gas furnaces and blowers, coal-gas being preferred because it is considered "easier" on the material. The gas used in this welding-machine is perfectly mixed within the blower, and not at the point of contact as is the usual practice—a difference in method which tends to a more uniform temperature at the point of welding. The hammer is operated by steam, and the work is very quickly and effectually carried out, the flue with its carriage being traversed along immediately under the gas fires and hammer.

The flue is next taken to the rounding-machine, also operated by hydraulic power. This tool has a central column, against which the flue is pressed by suitable shaping blocks conforming to the various flue sections. The outside block is given a reciprocating motion by hydraulic cylinders, and the pressing of the flue in this way against the inner column takes out any of the irregularities due to welding, etc. The heat at which this shaping operation takes place is between 1100 deg. and 1200 deg. Fahr. The flanges for securing the flue to the shell-plate and combustion chamber are next formed in hydraulic presses. The flue is then trimmed to the exact dimensions by cold band-saws, with spirally-designed tables which can be moved in any direction, radially, vertically, or horizontally. Slotting machines of special design are used to trim edges which it is not possible to reach with saws. The flue is pickled at a suitable stage in the proceedings, usually before flanging and dressing; and after this operation it is finally annealed in an upright furnace with a movable truck floor. The furnace is air-cooled, so that there is no chance of alteration in form. Thus completed, the flue is passed to the boiler-maker.

Engineering Department.—There are several large machine-shops in the Atlas Works, as a rule, 600 ft. long and 60 ft. wide, with cranes ranging up to 60 tons. Electricity is used for driving all the tools, cranes, etc. The planers, mostly of the screw type, are of great size, some taking jobs 15 ft. wide and 10 ft. high. The lathes, all triple or quadruple-geared, vary in length from 80 ft. down to 50 ft., and in the diameter of headstock from 66 in. to 48 in. centres. Some of the tools recently introduced have exceptionally wide pulleys for high belt-speeds, in order to obtain the necessary power for utilizing to the utmost the special tool-steel made and used by the company for heavy cutting at high speed. The boring-machines are of massive proportions; a 15-in. hole can be bored out of the solid to form a gun tube at a speed of 1 in. per hour. The boring of shafts with holes of 8 in. to 10 in. in diameter is done at the rate of from 3 in. to 5 in. per hour. The other tools of the department include several large slotting-machines, one of them having a stroke of 8 ft., and the necessary drilling and boring-machines. Special loading arrangements are provided for the despatch of productions.

The productions of the works are varied, as the following list shows:—

Armour-plates by the Krupp, Harvey, and other processes.

Marine and other engine crank-shafts.
Shaftings of all kinds.
Turbine drums of the largest dimensions.
Gun and other forgings.
Patent ribbed boiler flues.
Ellis and Eaves induced-draught apparatus.
Robert patent and crucible steel castings of all descriptions for engineering and colliery purposes.
Siemens crucible and all kinds of tool-steel
Atlas self-hard steel for high-speed cutting.
Rolled and forged bars, angles, iron and steel T-rings, etc.
Railway tyres, axles, springs, buffers, etc.
Patent wrought-steel wheels.
Foundry and forged pig iron.

There are extensive laboratories, where all material as it arrives in a raw state, or as it leaves in a complete form, is subject to examination, samples being taken at various stages for chemical analysis and mechanical tests. The chemical laboratory, fitted with the usual appliances, has a staff of fourteen chemists, and a great many of the analyses are by combustion. In the case of many of the productions tests are made at frequent stages; in armour manufacture, for instance, there are three or four chemical analyses and five or six mechanical tests. The measure of chemical hardness of armour is determined from drillings taken from the plate, analysed in layers of ⅛ in. by the combustion method.

The mechanical testing department has a 50-ton horizontal hydraulic testing-machine of the Buckton type, as well as an old-fashioned dead-weight testing apparatus, still useful and accurate, although slow. There are two lathes, four planing-machines, able to deal with pieces 3 ft. square by 3 ft. 6 in. high; a rotary-machine for milling, and other appliances, along with a press of 600-lb. pressure for cold bending. All these machines are practically kept working day and night, the aim being that nothing shall be sent from the works except it be thoroughly reliable. For railway work there is the usual drop-test apparatus.

Finally, it may be stated that the works can produce in a year:—

	Tons.
Armour plate	10,000
Forgings	5,000
Flues	2,000
Castings	2,500
Railway Material	20,000
Pig-iron	45,000
All other Manufactures	10,000

Projectiles.—The Norfolk Works of Messrs. Thomas Firth and Sons, Limited, which adjoin Messrs. Brown's establishment at Sheffield,

have a productive capacity of 40,000 tons of steel per annum. The manufactures are, for the most part, similar to those of the Atlas Works, consisting of forgings for ordnance work, shafting, etc., steel of every kind (including crucible steel of the highest quality for tools, high-speed steel, files, saws, edge-tools, etc.), and railway materials, with the important addition of projectiles. Nickel, chrome, and other alloy steels for motor-car construction are specialties.

The machine-tools in use are able to deal with the largest forgings that the engineer may require; but as the processes of manufacture are, more or less, the same as those carried out at the Atlas Works, and described in the preceding pages, we do not propose to deal completely with the plant at the Norfolk Works. We make an exception, however, of projectiles, as they are not manufactured at the Atlas Works. Indeed, it was partly the desire to be able to produce this important item in the completion of a warship for fighting service that induced Messrs. John Brown and Co., Limited, to become associated with Messrs. Firth, who have for many years been prominently and favorably known for their shot and shell. Messrs. Firth's connection with this department of industry dates from the days of the old round shot, which they produced from crucible steel, with the assistance of dies. They have since taken a leading part in all the succeeding stages, culminating in the modern capped armour-piercing shell, with its great penetrating power.

The manufacturing departments of the Norfolk Works utilized for the production of projectiles include the steel-producing plant, the forge and press departments, and extensive machine-shops. For the melting of steel for projectiles and similar purposes—tool-steel, etc.—there are 148 crucible-holes, each accommodating two crucible-pots; the capacity is over 5000 tons per annum. All projectiles were at one time made from crucible steel; but in the more modern systems of manufacture, especially where special alloys are utilized, it has been as convenient and efficient to utilize the Siemens-Martin open-hearth furnace at the works for this as for other purposes. There are four of these in the Norfolk Works, one of them having a capacity of 45 tons, two of 25 tons, and one of 10 tons. Ingots from the steel-melting department are sent to the forge, where they are worked into bars under hammers ranging from 12 to 30 tons in power.

The process of manufacture differs according to the final form which the projectile is to take. When it is intended to make armour-piercing shot, the blanks—as the embryo projectiles are called—are bored and turned, then hardened and tempered, gas checks or copper bands being subsequently fitted on. Blanks to be manufactured into armour-piercing shell are sent to the punching and drawing-shop, where they are dealt with by a series of hydraulic presses, varying from 500 tons to 100 tons in power. The first process consists in the formation of a cup at the base of the pointed blank, to facilitate the subsequent drawing down into a hollow cylindrical form. The press for the latter purpose is of the horizontal double-headed type, of 300 tons power, having a cylinder 16 in. in diameter and a stroke of 72 in. The shell cylinder is next machined, hardened, examined and tested. An important part of the work is done in the forge, which is fitted with a modern 12-ton hammer, and many other hammers.

For the machining of the projectiles to the correct finished form there are five machine-shops, some of them arranged for doing special work upon all sizes of shot, in order to concentrate as far as possible the experience gained. In these several machine-shops there are 146 machine-tools, many of them of special type. The tool for forming the ogival, or pointed nose, is a particular pointing lathe; the cutting tool accommodating itself to the lessening diameter of the nose by means of a radius bar, secured at one end to a fixture on the frame, and at the other end operating a cross-slide, which again actuates the cutting-tool. The groove for the copper band is cut in an ordinary lathe, with ribs in wavy lines, so as to prevent the band from rotating independently of the projectile in its passage through the rifled bore of the gun. This band is pressed into the groove on the projectile on a special hydraulic press of the horizontal type, with a 15-in. cylinder. For this special duty there is mounted on the cross-head of the ram a die representing half the circumference of the ring, while the head of the press carries a similar die corresponding to the other half; the projectile, with its ring, having been placed in position, the hydraulic pressure exerted through the dies, forces the ring at all points of contact into the groove prepared for it.

The projectile after being hardened is finished to its ultimate true diameter by means of grinding-machines, of which there is a large collection, specially devised for the varied work of the company. These machines are fitted with horizontal spindles for holding the projectile in front of the grinder. The spindle is provided with a hand traversing-slide, so that the machinist has complete control over the operation, and can ensure that the grinding is done to suit the gauge. All so-called solid shot have a small hole bored down the centre, and even shell drawn hollow in the press are sometimes turned internally. This work is done in boring-mills of the horizontal type. The shells are steam heated internally prior to the process of lacquering, and the time and percussion-fuse blocks are screwed at the base in the ordinary way.

Messrs. Firth have also made a speciality of the steel castings for turbine machinery.

The Clydebank Shipyard.—Since it was constructed in 1873, this establishment, situated on the Clyde, near Glasgow, has added to the naval and merchant fleets of several nations a long line of vessels of the highest standard and success. Beginning with the smallest class, the sloop of war, advance has been made step by step to the largest battleships and cruisers in the world; with the result that the managers and staff have accumulated an experience which enables them to undertake naval work with the assurance of absolute success, and at the same time inspires the naval authorities of Britain and foreign countries with confidence in ordering such vessels. The firm also possesses an experimental tank in which to conduct ship-model tests according to the system first introduced by Dr. Froude, by which means it is easy to determine the design that will give the greatest propulsive efficiency, and ensure the highest speed for a given weight and power. By the aid of the special plant in use, the work of ship construction can be effected expeditiously, efficiently, and cheaply.

If further evidence than the success of the Lusitania were required to establish the high place of the works among shipbuilding concerns, there is the fact that the firm are now completing the construction of the 25-knot armoured cruiser Inflexible, than which there is no more powerful cruiser afloat. They have built or engined warships totalling 180,600 tons displacement and 451,830 horse-power. Their enterprise, too, is reflected in the fact that they have completed, or have in hand, turbine machinery totalling 213,000 horse-power—a greater total than can be credited to any firm in the world. Many of the fast Channel steamers have been built at Clydebank, and the record of Atlantic work is almost unique. Mention may be made of the Saxonia, Caronia, and Carmania as well as the Lusitania. The Table on this page gives the names of typical warships built during the past few years. In addition, machinery has been constructed for the battleship Africa the armoured cruiser Essex, and the fast scout-cruiser Boadicea.

TABLE IX.—SOME TYPICAL WARSHIPS BUILT AT CLYDEBANK WORKS.

——	Length.	Displacement.	I.H.-P.	Speed.	GUNS.
Battleships.	ft.	tons		knots	
H.I.J.M.S. Asahi.....	400½	15,200	15,000	18	Four 12-in., fourteen 6-in., twenty 12-pr., eight 3-pr., four 2½ pr.
H.M.S. Hindustan....	425	16,350	18,521	19	Four 12-in., four 9-2 in., ten 6-in., twenty-eight smal.
H.M.S. Jupiter.......	390	14,900	12,000	17.5	Four 12-in., twelve 6-in., eighteen 12-pr., twelve 3-pr.
Armoured Cruisers.					
H.M.S. Inflexible.....	530	17,250	—	—	—
H.M.S. Leviathan....	500	14,100	31,203	23.28	Two 9.2-in., sixteen 6-in., fourteen 12-pr., three 3-pr.
H.M.S. Antrim.......	450	10,850	21,604	23.02	Four 7.5-in., six 6-in., two 12-pr., twenty-two 3-pr.
H.M.S. Sutlej.......	440	12,000	21,261	21.77	Two 9.2-in., twelve 6-in., fourteen 12-pr., three 3-pr.
H.M.S. Bacchante....	440	12,000	21,520	21.75	Two 9.2-in., twelve 6-in., fourteen 12-pr., three 3-pr.
Protected Cruisers.					
H.M.S. Terrible......	500	14,200	25,000	22.4	Two 9.2-in., sixteen 6-in., fourteen 12-pr., eight 3-pr., nine maxims, two 12-pr. (landing).
H.M.S. Ariadne......	435	11,000	18,000	20.75	Sixteen 6-in., fourteen 12-pr., three 3-pr., two maxims.
H.M.S. Europa.......	435	11,000	16,500	20.5	Sixteen 6-in., fourteen 12-pr., four 3-pr., two maxims.
Torpedo-Boat Destroyer.					
H.M.S. Arab.........	218	470	6,000	31	One 12 pr., five 6-pr.

In describing the works, it may be more interesting to review the departments and plant in the order of their use and importance in the building of the ship, rather than to adopt an itinerary method; and it may be said at the outset that the works have a frontage to the River Clyde of 3200 ft., and that the building berths have a length varying from 450 ft. to over 800 ft.

The Experimental Tank.—The department which first influences the efficiency of the work is the experimental tank. The waterway extends for 445 ft., of which 400 ft. is deep, varying from 9 ft. at the north end to 10 ft. at the south end. This fall of 1 ft. is gradual, and is for the purpose of drainage when emptying. The breadth is uniformly 20 ft. At the north end there are wet and dry docks; of the wet docks, one is for storing models, and the other, placed between the dry docks, is used for loading and trimming purposes. The towing-truck can be run over the central dry dock, and the dynamometer and propeller gears examined from it; the latter must be raised to clear the dock-sill. Ballast bags and some spare parts are stored in both dry docks. At the south end there is a sloping beach, 25 ft. long, to assist in breaking up the waves formed by the passage of a model through the water. A recess, however, is left up the middle, to prevent screws or models being run aground. The basin, which is rectangular in cross-section, is formed of concrete, with expanded metal and puddled clay backing.

The building is of brick, and besides the tank proper, provides accommodation for a large drawing-office, a tracer's room, and superintendent's office, with the necessary fireproof record-rooms, etc. Adjoining the tank and in communication with it is a complete new department for model-makers. These assist in the work of the tank by making cores for the casting of paraffin wax models, and in fairing down

the latter when they come from the shaping machine.

As it is very necessary to keep the temperature of the tank at or about a uniform degree, winter and summer, a complete system of hot-water piping is installed, and the heat is controlled at the calorifiers, of which there are two at the north end and one at the south end of the building, in rooms for the purpose. The offices and shops are heated on the same system with pipes and radiators.

Light is admitted to the tank by windows on both sides, and from the roof, which is in great part of glass; while a complete system of electric lighting is installed throughout the buildings.

The models used are generally about 15 ft. long, although exception is made in the case of high-speed torpedo-boat destroyers, when the length is about 11 ft. The model of the Lusitania was made to a scale of 1-48th, being 15.83 ft. in length; the speed of this model corresponding to 25 knots was 365 ft. per minute, or about 3¾ knots; but models are always run over a range of speeds lower and higher than that proportionate to the trial speed of the ship; and they are run at these speeds in three or five conditions of displacement, so that complete information relating to displacement, speed, and resistance is obtained for each model.

The melting-boxes are supported on the wall. Paraffin wax with a small addition of beeswax is melted in the upper box, and strained into the lower or storage one; from there it is run off through pipes into a mould in the clay, or casting-box, the mould being carefully prepared to the shape required for the model, with a margin allowed, and having a core of lath and canvas to regulate the thickness.

When the casting has sufficiently set, it is levelled on the top and carried to the cutting or shaping-machine. As part of the cutting-machine there is a wheeled carriage on planed rails, in which the casting is placed, secured at the middle line, keel upwards, while in front there is a table on which a half-breadth plan of the ship is pinned. Two cutters, which, when at work, rotate at about 2500 revolutions per minute, are adjustable about the centre line of the carriage, and in a vertical direction.

This is, as yet, the only electrically-driven tank carriage in this country, motive power in the other cases being supplied by a rope driven from a winding engine. Current is supplied from one of the yard power-stations, but as it would be too irregular if applied direct, it is passed through a motor generator into accumulators, from which it is again discharged through the motor generator at a suitable and regular voltage, and delivered to the tank. The method of measuring the resistance of a model is that used by the late Dr. Froude, of recording graphically the extension of an accurately-made spiral spring. The extension is magnified twelve times, and each spring is standardized in position before use; but full details will be found in our article, to which we have already referred.

The Hull Constructional Plant.—The work of hull construction begins in the case of all ships in the moulding-loft, which is 250 ft. long and 55 ft. wide; the roof is of light steel principals, with corrugated iron on the purlins, and the sides are entirely of glazing. There are frame-bending shops in the western and eastern yards, each with several angle-iron furnaces, 61 ft. long, and a large floor area of cast-iron blocks for setting the frames, as well as screeve boards for laying them out. There are alongside, also under cover, the usual equipment of punches and shears, with a special hydraulic machine for cutting off the ends of channel bars, and a machine for planing both edges of angles at one operation. A specially noteworthy machine is that for setting the flanges of angle-iron frames to the required bevel. The tools in the platers' shed, as a rule, are designed to work plates up to 35 ft. long and 7 ft. wide. There are about thirty punching and shearing machines. Of special interest are two double punching machines, of the cam and lever pattern, with twin punches at each side. There are two hydraulic manhole punches, capable of working holes of 36 in. by 22 in., while two other machines of a kindred nature for cutting elliptical and circular manholes are worked with automatic feed. Irregularities in the plates, angles, and channel framing of warships, due to splinter gratings in the air-hatches of protective decks and to other causes, have made necessary the use of band saws for cutting such sections, instead of the ordinary hydraulic shears; and two powerful saws of this type are in constant use at Clydebank, in addition to the ordinary circular saws, of which there are four. There is an immense hydraulic flanging machine for setting plates for the keel and garboard strakes, as well as for stiffening flanges in bulkheads. It is capable of dealing with plates of any length, being open-ended, but the machine itself is 25 ft. long.

Wood-working Department.—As can readily be imagined, in an establishment which sends out a large number of high-speed passenger steamers and yachts, the wood-working department is very extensive, occupying about 10 acres of ground, two-thirds of which is covered by drying sheds. The timber for the joiners' shop is accommodated in a building measuring about 360 ft. long by 125 ft. broad, and having 112 portable racks and four patent electrically-driven radial cross-cut and ripping saws, for cutting timber to the exact size required by the joiners. The store for deck planks is a duplicate of the joiner's shed, the timber being delivered automatically from the planing-machines to any part for stacking. There is ample accommodation, entirely under cover, for storing and seasoning all wood required for the decks of twelve Atlantic liners.

The saw-mill is new, and is situated at the extreme west end of the yard. It is controlled in every part by four overhead travelling cranes, which lift the logs direct from the river, and store them or deliver them to the machines as required. The log department is fitted with machinery of a combined cutting capacity of over 500 logs per week. In the re-conversion and re-sawing of the wood the principal machines used are one large deck planer, one lining and flooring machine, one American planer, one moulding machine, one deal frame, one improved Casson's bench, two small saw benches, two large travelling circular benches, one lightning planer, two pendulum cross-cut saws. In the saw-room there are seven automatic saw-sharpening machines for band-saws, one automatic blade-grinder, one punching machine, and two hand-sharpening machines. The wood stove is controlled by a patent thermo tank, by which the temperature can be regulated at will. The entire installation is supplied with steam by two Lancashire boilers, automatically fired by Henderson's patent stoker for sawdust and chips. The buildings, machinery arrangements, etc., were designed by the company's staff.

The joiners, cabinet-makers, and polishers are accommodated in a two-storey brick building, 200 ft. long and 150 ft. broad. The collection of wood-working tools is complete, and is representative of the best British and American practice. It includes sand-papering machines, dove-tailing machines, blind-slotting machines, and special tools for cutting spiral or fluted grooves of balusters, sheer-legs, etc., with the usual planing and moulding machines. The shavings, etc., and sawdust are carried off by a pneumatic conveyor direct into the furnaces of the boilers in an adjacent power-station.

The Fitting-out Basin.—It may not be uninteresting to introduce here a reference to the dock or fitting-out basin. It occupies the central part of the water frontage, and extends for 750 ft. from the river, while the width of the dock is 320 ft. from cope to cope. In addition to the 120-ton sheer-legs, which have done service for so many years, and several 20-ton and 10-ton travelling-cranes, the firm have recently erected two cranes of 150-ton capacity—one on each side of their fitting-out basin—so that they may deal with the heaviest loads for two ships simultaneously without moving the ships to and from the crane berth, as is done in other works, at considerable expense in time and money. One of the new cranes is of the derrick type. The foundations are steel cylinders sunk to a great depth; and these, together with the structural portion of the crane, were built by, and from designs of, Sir William Arrol and Company, Limited. This crane is placed on the east side of the dock, and has been used in the fitting-out of the Cunard liner Lusitania. The other crane is of the hammer or Titan type, and is placed on the west side of the dock. It consists of a square tower, 125 ft. in height, carrying a horizontal jib of a total length of 240 ft.; the long arm being 150 ft. in length. The jib is supported upon a ring of live rollers, and is capable of making a complete revolution in either direction, with lifting and racking motions. This is the largest crane of its type yet completed.

The Engineering Department: Turbine-making Machinery.—We now turn to the engineering department of the works, which is compactly arranged near to the head of the fitting-out basin. Some idea of the capacity is provided by the fact that for several years the average output has been over 60,000 indicated horse power per annum, the number of men engaged in this department alone being from 2700 to 3000.

First mention must be made of the lathe for turning large turbine rotors. This tool is 82 in. in height of centres, 50 ft. long between centres, and 11 ft. 10 in. wide across the double-slide bed. The width across the base of the loose headstock is 8 ft. 9 in., and across that of the fast headstock 9 ft. 1 in., rendering these parts sufficiently rigid to prevent any irregularity of the rotor before turning affecting the perfect roundness of the finished work. The overall length of the lathe is 72 ft. 6 in., and the gross weight 163 tons. There is also a large and very powerful horizontal boring-mill, specially designed for boring turbine casings. The overall length is 76 ft., and the total weight 95 tons.

Included amongst other heavier tools are two vertical milling machines, the cutters used varying in diameter up to 18 in.; the cross-feed is 6 ft., and the transverse-feed is 2 ft. 1 in., the movable tables being 4 ft. in diameter. There is a treble-geared miller, capable of milling a surface 10 ft. by 4 ft. 7 in. by 18 in. deep, the table being fitted with a quick-return power motion. Opposite this latter tool is a triple-geared lathe, 20 ft. between centres, with an independent motion by screw; the headstock is 33 in., and is provided with rack motion for quick hand traverse; the saddles are arranged so that they will pass alongside the shifting-head, in order that an extra large job may be faced up. The face-plate is 5 ft. 10 in. in diameter, and can swing 48 in. and 54 in. clear of the back and front saddles respectively. There are two other powerful treble-geared lathes, mounted on one bed, so that a 33-ft. length of shafting can be driven by both heads. Close by is a large radial drill, having a spindle 5 in. in diameter, and fitted with a screw and hand gear; the jib has a 3-ft. vertical travel, the drilling spindle traverses 8 ft., and the vertical feed is 2 ft. 6 in. There are five slotting machines, the larger having a 20-in. stroke, with compound and rotary table, and another with a 16-in. stroke, with a quick-return motion, admitting articles up to 5 ft. 4 in. in diameter. Adjoining is a large treble-geared face-place lathe, the plate measuring 11 ft. in diameter. There are together a set of three combined planing and slotting machines, with quick-return motions. One can deal with an area of 21 ft. long by 17½ ft. high, and is arranged to take a cut of cast iron 1 in. deep at a speed of about 15 ft. per minute; a second can slot and plane over a surface of 20 ft. 6 in. long by 14 ft. high; the third machine can take a job 15 ft. long by 12 ft. high.

At the north end of the bay there are grouped a set of four horizontal universal, boring, drilling, and tapping machines, and two of these can operate over a continuous vertical surface of about 40 ft. by 10½ ft. These powerful machines have bored cylinders of exceptional diameter, tapping and studding their flanges at a single setting. One of the 5-in. spindles of these

machines is fitted with an interchanging wheel arrangement for combing or cutting internal screws of large diameter, by means of a chasing tool held in a small slide on the end of a spindle. Opposite these machines are two powerful treble-geared shafting lathes, whose beds are continuous, and with feeds up to 5 in. per minute. They are 21-in. centres, and each is fitted with two strong duplex sliding saddles, each having front and back duplex rests. The front rests are arranged for tapered work.

It is not possible, however, to give anything like a complete idea of the equipment of the engine works, which also include a well-equipped brass foundry, brass-finishing shop, galvanizing shop, sheet-iron department, copper smithy, as well as the boiler works, in all of which electricity is adopted, the modern system of driving the dynamo by producer gas-engines being adopted.

The brass foundry is considered one of the largest and finest in the country, having ample plant and every facility for carrying out all classes of work. The equipment includes air furnaces ranging from 16 tons to 5 tons, drying stoves 20 ft. long by 20 ft. wide, heavy overhead travelling cranes, and hydraulic jib cranes, 2½ cwt. air furnaces and 32 crucible furnaces, hydraulic and hand-moulding machines, besides rumblers, and circular and band-saws. In order to render the foundry self-contained, there is a 3-ton cupola for making the required moulding boxes and plates, core bars and core irons, and the other cast-iron necessary for the department. Brass castings up to 25 tons have been dealt with. Adjoining the foundry are the requisite stores for metal, sand, and furnace coal, etc., and close by is the hydraulic house, in which is a 60 horse-power and 100 horsepower gas-engine, driving separate three-throw pumps, and supplying two accumulators, 15 in. and 21 in. in diameter respectively, with a stroke of 14 ft.

The brass-finishing shop forms the upper floor of a two-storey building, the ground floor of which is devoted to water-tube boiler work. In this shop are lathes, milling machines, and screwing and grinding machines; a most interesting feature being a number of small English and American machines of ingenious design, for the machining of duplicate parts. In both of these shops small longitudinal and transverse overhead travellers are arranged, as well as a powerful hydraulic hoist for the transport of material to and from the brass-finishing department.

The main boiler works are divided into four bays, being 410 ft. long, with a total width of 190 ft. In the two largest bays the cylindrical boilers are constructed, and there are several very powerful tools, notably plate-edge planers for dealing with plates 38 ft. long, and a vertical machine for cutting ovals for manholes on cylindrical boilers. In the main bay there is a plate furnace 20 ft. long by 10 ft. wide, with a powerful steam-hammer, the whole set being commanded by an hydraulic crane. There are several powerful flanging machines, multiple boring and drilling machines, vertical cold-plate rolls, taking 12-ft. plates, and many punching, shearing, drilling, and tapping machines, besides several large riveting machines. The third bay is largely utilized for the construction and erection of water-tube boilers.

The electric generating plant for shipbuilding and engineering departments has a total capacity of 3000 kilowatts, and the consumption of current for lighting and power reaches about 50,000 units per week: a fact which suggests the extent of the application.

There are also hydraulic and compressed-air plants.

John Brown & Co., Ltd., and Thos. Firth & Sons,. Ltd., have a branch office in Shanghai under the capable direction of H. P. King, M.I.M.E., located on Kiangse Road. The increasing demand for high grade tool steel for the many arsenals, dockyards, machine shops, etc., and for projectiles, has necessitated the establishment of a separate Far Eastern Branch to handle this important business.

The first-class cruiser *Inflexible* has just been completed at the Clydebank Yard and handed over to the British Government. In the new Admiralty programme, Messrs. John Brown & Company have secured orders for one cruiser, three torpedo-boat destroyers, and the machinery for one of the battleships being laid down in a Government yard.

Messrs. John Brown & Company, Limited, are now allied with the well-known Belfast shipbuilders, Messrs. Harland & Wolff, who have now under construction two steamers for the Atlantic trade, each of about 43,000 tons.

To extend their business in the Far East the Company established a Branch Office for China which is located at 24A Kiangse Road, Shanghai.

HOW JAPAN USES HER FORESTS*

Japan's system of forestry is probably the oldest in the world. Long before France and Germany took precautions to protect their forests—in fact before these countries existed, Japan had a well managed system of forestry. Royal commands, ordering trees to be planted along the headwaters of rivers that floods might be prevented, were issued in Japan fifteen hundred years ago. Trees were also planted to prevent landslides, and the princes of Japan kept records of plantings and encouraged the production of the more valuable trees.

From these early times to the present day, the people of Japan have made the greatest use of the products of their forests. Their skill in finishing and constructing articles from the various kinds of woods, has become famous. In fact, the word "japan" has come to mean "to varnish" and is no longer spelled with a capital in that connection.

The policy of the Japanese is such that the forests of the country have not only been kept from deterioration, but become more valuable from year to year. This has been true notwithstanding the increase in population which has made land more valuable for other purposes besides the growing of forests.

The "free use" privilege, in the early days of Japanese history, was restricted. By "free use" is meant permission granted to cut whatever trees and as many as wanted, for personal use, in the forest. When the ancient Government of the Barons was overthrown in the middle of the last century, the forest policy was changed, and free use was allowed. This resulted in an immediate drain on all forests near large centers of commerce. Later, the old policy was restored and the forests are again properly administered, and are one of Japan's crowning glories and a substantial source of revenue to the State.

Two kinds of forests are specified in the forest laws of Japan. The "reserve forest" is kept as a guard and protection against floods and other menaces to life and prosperity. The "available forest" is made to yield the greatest source of income possible. The State owns a little over one half of the total area of the wooded land in Japan. From the 33,000,000 acres included in its portion, the State makes a net revenue of sixteen million pesos a year.

As in other branches, so in forestry, Japan is not averse to learning all that is to be learned from other countries. Germany, offering the most complete and efficient service, became, for some time, the teacher of young Japanese who went there to investigate the workings of the German system. Today, there are sixty-two Japanese institutions that instruct in forestry where thirty years ago there was none.

The Japanese have any number of uses to which they put the oak tree. From it, railway sleepers are manufactured; charcoal is made; from its bark tanning material is taken. The oak, the curly ash, and the bird's eye maple are all particularly handsome when made up into furniture. The timber of these trees is exported to China, Australia, Mexico, and the United States. Bamboo is used in all manner of ways, as in the Philippines.

Mulberry, lacquer, and vegetable-wax trees grow on cultivated land and furnish a substantial revenue for their owners.

One use to which trees are put in Japan that is unique and interesting, is their use in landscape gardening. Japan is famous the world over for the artistic arrangements of trees and shrubs that make the whole country resemble a well cared for park. Pines, maples, oaks, and chestnuts are used to work out elaborate designs. Cherry trees and flowering magnolias are extensively used; so also are the dwarfed pine trees that grow in all manner of shapes and live to be centuries old.

Many of the varieties of trees found in Japan are found in the Philippines. There are also many valuable trees in these islands unknown to Japan. Millions of acres of forest in the Philippines, representing incalculable wealth and material comforts for the Filipinos, lie practically unused. The opportunities for bringing this country a substantial yearly income from its forests are here. All the many aids to comfort that the Japanese derives from his forests can be had by the Filipinos. Landscape gardening could be made quite as effective in Manila as in Tokyo. The raw material for producing costly carvings and other works of art is present in abundance and the Filipino possesses much of the peculiar skill and artistic insight necessary for such work. What is lacking in the Philippines is a realization of opportunities offered. When the Filipino has learned to appreciate and care for the Philippine forests as the Japanese cares for his, he will have taken a long step towards prosperity and culture.

*Bulletin Philippine Bureau of Forestry.

BANKING IN MONGOLIA

There are rumors that the Urga Branch of the Russo-Chinese Bank is to be closed on the Russian New Year, writes the correspondent of the *China Critic* at Urga. If these rumors be true, Mongolia soon will have no European banking institutions; the only Bank, run more or less on European lines, being the Taching Government Bank.

The Uliassutai Branch of the Russo-Chinese Bank is already closed, and the Kalgan Branch will shut their doors on the Chinese New Year (22nd inst.).

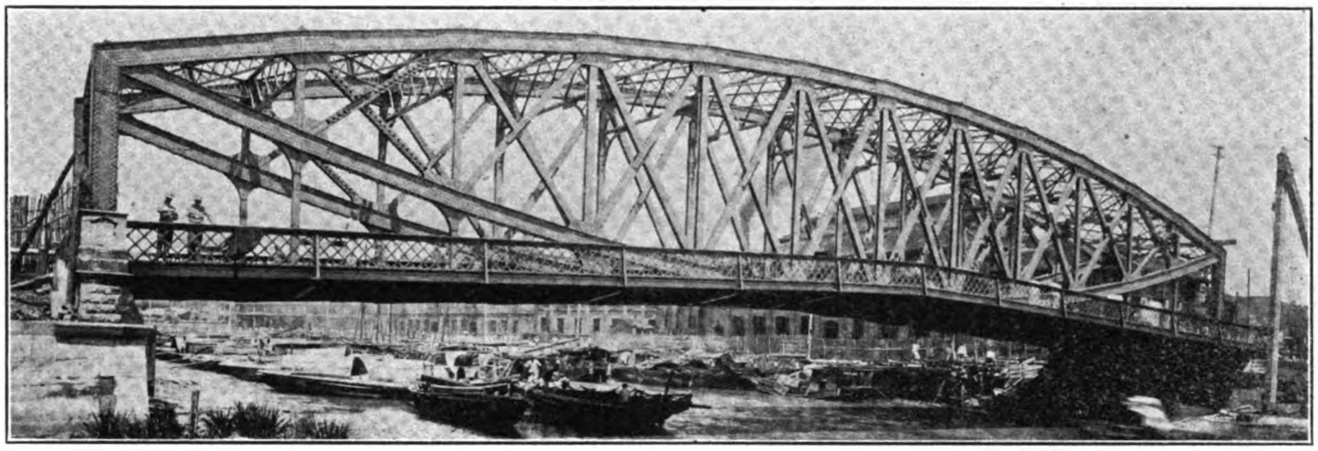
It is true that a European Bank, wishing to transact its business in Mongolia in the same way as it is done in China or elsewhere, cannot hope to be very successful; as, in order to make its business profitable it ought to act as the others do, i. e. buy and sell skins, furs, wool, etc. The general expenses are necessarily great, and, as the branches in Mongolia cannot have their own capital (deposits are unknown in this country) and have to borrow it from their Head-Office at a higher rate of interest than the usual deposit rate, the profits, if any, are so small that it is really not worth while to keep branches in Mongolia, and thus set aside a considerable amount of money necessary for their working, which money might be more profitably employed elsewhere.

General Lectures on Electrical Engineering, by Charles Proteus Steinmetz, A.M., Ph.D., consulting engineer of the General Electric Company, professor of electrical engineering, Union University, and past president A. I. E. E., has reached our desk from the presses of Messrs. Robson & Adee, publishers, Schenectady, N. Y. It is a volume containing a series of lectures by Professor Steinmetz, edited by Joseph Le Roy Hayden, and is a valuable addition to electrical literature. The lectures are general in their nature and have to do with problems of generation, control, transmission, distribution, and utilization of electric energy. Price, $2.00 net.

Modern Steam Engineering in Theory and Practice, by Gardner D. Hiscox, M.E., with *Chapters on Electrical Engineering*, by Newton Harrison, E.E., has been issued from the presses of Messrs. Norman W. Henley & Co., New York. It is a practical work for steam users, electricians, firemen, and engineers and brings up to date all available information on economy in the uses of steam and covering all its many properties and use for power. The volume is illustrated with 400 engravings and contains forty tables together with a compilation of questions likely to confront the student before examining boards. Price, $3.00 net.

The Garden and Chekiang Road Bridges, Shanghai

The Garden Bridge across Soochow Creek, recently constructed by Messrs. Howarth, Erskine, Ltd., Singapore, is one of the most important public improvements to the credit of Shanghai during recent years. The first pile in the cofferdam was driven in August 1906 and the bridge opened to traffic in January 1908.



SIDE VIEW OF THE CHEKIANG ROAD BRIDGE, SHANGHAI, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

The bridge has two equal spans of 171 feet 2.25 inches made up of eleven panels and giving two clear waterways of 167 feet. The main girders are riveted modified Pratt trusses, 30 feet deep at center and spaced 40 feet apart, the footways being on cantilevers. The total width between parapets is 60 feet, the carriage-way 36 feet 9 inches wide between kerbs, the footways 9 feet 6 inches each clear and the head-way under the portals 17 feet 6 inches. The gradient of the approaches was fixed at 1 to 30, the gradient at the North span, 1 to 38, and at the South span 1 to 57. The clear headway above water for boat traffic varies from 6 feet 6 inches to 11 feet under the North span and from 8 feet to 11 feet under the South span as stipulated by the harbor authorities.

The abutments and pier are built of Portland cement concrete and Soochow granite quoins and cutwaters with steel T bars for reinforcing the pier and abutments.

This data is taken from the report of Charles Mayne, M.Inst.C.E., Municipal Engineer, under date of January 20, 1907, in which he gives a further résumé of the history of bridging the Soochow Creek and includes his report on this important work at that stage. He says:

"After innumerable delays the erection of the Garden and Chekiang Road Bridges has been commenced. Over 30 years have elapsed since the accident to the iron bridge over the Soochow Creek at the Garden, and in the interval the old wooden structure—raised, widened and renewed from time to time—has carried the ever increasing traffic effectually, if not altogether smoothly. The history of the bridge is closely connected with that of old Shanghai, and its demolition will be regretted by many.

"The first bridge across the Soochow Creek near its mouth was erected by the Soochow Creek Bridge Company in 1856-7, between the old Consulate entrance and the present Woosung Road. It was a wooden draw-bridge and tolls were levied. In 1871 an iron bridge with screw pile piers, and having one draw span, was built near the site of the present bridge, but an accident happening on the eve of completion it was finally removed. The present Garden Bridge was built by Messrs. Farnham & Co. in 1873.

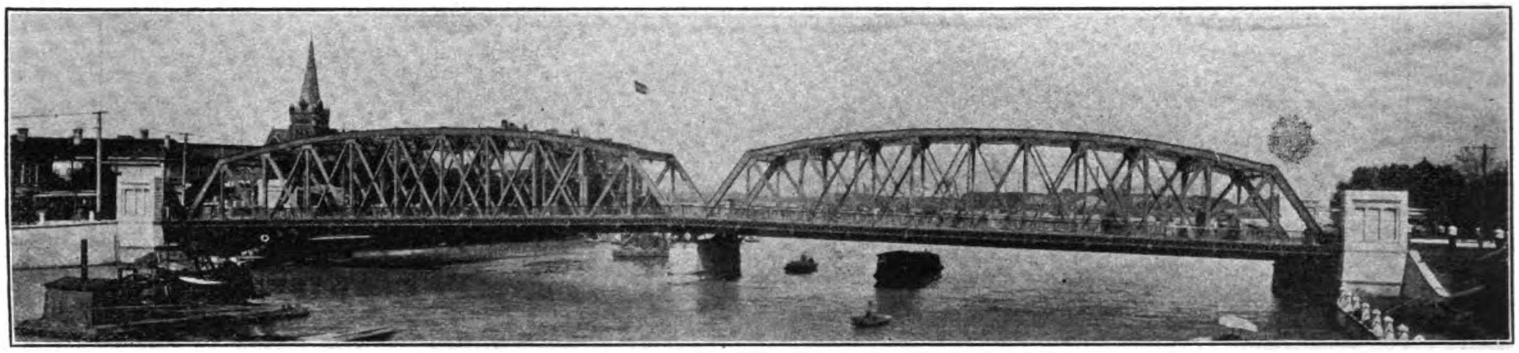
"The design of the bridge now in course of construction has been arrived at after long and careful consideration. A considerable number of alternative designs were submitted to the Council by the writer, including one span, two spans, three spans, one span over fairway with short approach spans on the Hongkew side, etc. Owing to the unstable nature of the soil it was considered advisable that no horizontal thrust should come upon the abutments, arched structures were therefore precluded, though, from an aesthetic point of view, and also for other reasons, an arched type would have been desirable. It was originally intended to allow tenderers to submit their own plans, subject to certain limitations, and plans and specifications were drawn up accordingly, but this idea was abandoned at the last moment, as there was always a considerable doubt as to the lines on which the Soochow Creek would ultimately be conserved, and in the absence of definite information it was felt that money might be expended needlessly. Under the circumstances it was decided to await the arrival in Shanghai of the Engineer-in-Chief of the recently constituted Conservancy Board (Mr. J. de Rijke) in order to confer with him on the subject. The matter was only settled in March last, and it was finally decided that a two-span bridge would best meet the various requirements. In order to save time, which was very limited, it was arranged that drawings should be at once prepared in this office, and that the construction of abutments and pier should be proceeded with departmentally directly the drawings were completed and while tenders for the steelwork were being advertised for. It was also decided, in view of the difficulties likely to be encountered in connection with the work, that the services of a Consulting Engineer should be retained, and Mr. A. H. Collinson, M.Inst.C.E., was offered and accepted the appointment."

In his recent report for the year 1907 announcing the completion of the Garden Bridge, Mr. Mayne says:

"The most important public work yet carried out by the Council—the erection of the Garden

END VIEW OF GARDEN BRIDGE, SHANGHAI, ERECTED BY HOWARTH, ERSKINE, LTD.

Bridge—has been completed during the year. The first pile in the cofferdams was driven on August 4, 1906, and the bridge was opened to traffic on January 20, 1908—less than 18 months, including the extensive raising of the approaches. Taking into consideration the miscellaneous nature of the plant, the delay caused by having to blast away the old foundations, the treacherous nature of the soil, and the difficulties in connection with native labor, the time compares favorably with other constructional work executed in Shanghai. The carrying out of the substructure departmentally has proved a somewhat troublesome undertaking, and although no actual breakdowns occurred, the putting in of the foundations gave rise to considerable anxiety. The nature of the site, difference in levels, and the conditions imposed as to headway, width of spans, etc., precluded an ornamental structure, but the bridge has been designed as a first-class highway bridge, and future as well as present traffic requirements have been taken into consideration. The Contractors for the steelwork for this and the Chekiang Road Bridge were Messrs. Howarth Erskine, of Singapore, who carried out the erection with commendable celerity. The Cleveland Bridge Company, of Darlington, England, manufactured the steel."



SIDE VIEW OF GARDEN BRIDGE, SHANGHAI, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

"After a considerable amount of trouble with the cofferdams the concreting of the North abutment was commenced in March and of the pier in April. The South cofferdam was the most difficult to keep watertight, and it was only by working 24 hours a day with the driving of foundation piles that concreting was able to be commenced by the end of May. The North abutment was completed to the level of main girder-bearings by the end of June, the time originally stated for completion. The pier was finished two weeks later, this slight delay being due to a great deal of the stonework being delivered inaccurately cut. The South abutment was completed to the level of girder-bearings before the end of July and the staging and temporary work necessary for the erection of the steelwork was then put in hand.

"Delivery of the North span upon the site of the works commenced on September 28, and of the South span on October 21. That the two spans were erected and rivetted by December 15 reflects great credit on the contractors.

"The raising of the North approach roads was commenced on September 15 and was finished so far as was then possible by the end of October. It was unfortunate that owing to the non-arrival of special work the Tramway Company were unable to lay their tracks in Broadway at this juncture, and thus have avoided closing the road to vehicular traffic for a second time.

"The tramway tracks, wood block paving, and cement footways upon the bridge itself were laid during December. The wood block paving was executed under contract with Messrs. Bruce, Peebles & Co., and the cement footways were carried out departmentally.

"The South approach was commenced in November and was sufficiently advanced for the track work to be commenced on December 21.

"Most of the material used for raising the approaches has been quarry refuse from the Council's Quarry at Pingchiao. Its removal has been the means of providing additional ground for stacking chips, decomposed sand, etc., at the Quarry, and it has at the same time proved an excellent and solid material for filling. The North approaches will be completed by the construction of a concrete bunding between the north-west corner of the bridge and Woosung Road. This work is in hand, but, owing to the holidays at Chinese New Year, is not expected to be finished before the middle of March.

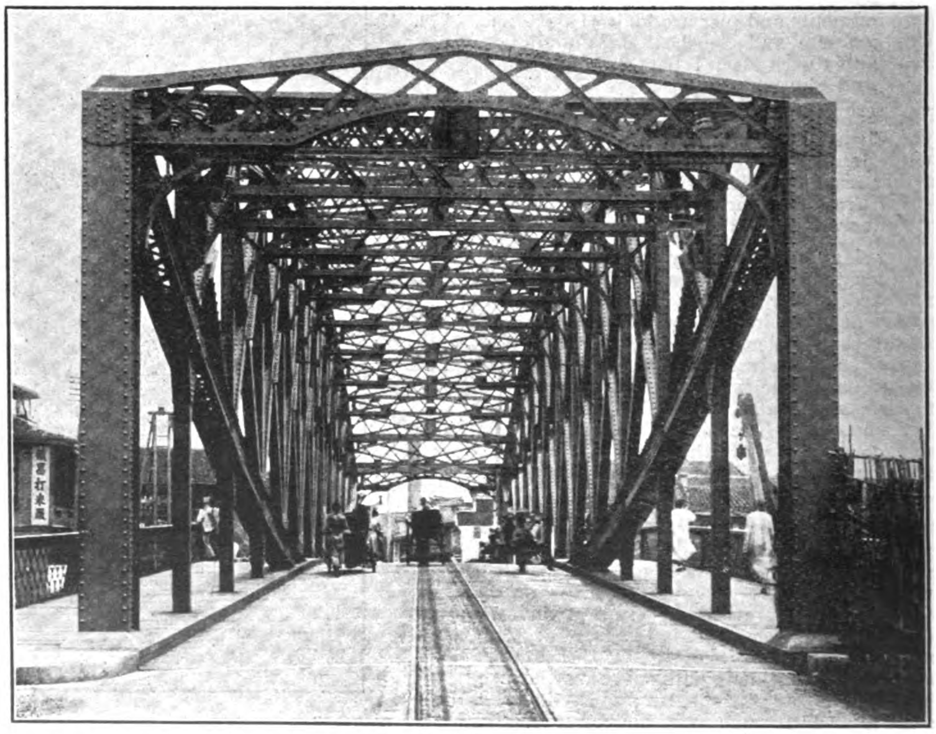
"A contract has been entered into with Messrs. Stolz & Kind for the construction of Shantung Granite Pylons on the wing walls of the abutments and the same firm's tender has been accepted for the construction of boundary walls on the South approach. The latter, however, will not be erected at present.

"It is satisfactory to be able to record that up to the present no settlement of foundations has taken place since their completion."

The Chekiang Road Bridge.—The construction next in importance to the Garden Bridge is the Chekiang Road Bridge which was completed in February. This bridge is described in the Municipal Engineer's report for 1906 as follows:

"The Chekiang Road Bridge will be in one span of 196′ 0″, giving a clear waterway of 192′ 0′, with a maximum headway for boat traffic of 11′ 0″ above high water. The main girders are lenticular trusses, spaced 24′ 0″ apart; the carriageway will be 21′ 6″ between kerbs, and the footway cantilevers 8′ 0″ each. The total width of the bridge will be 40′ 0″ between parapets, the existing wooden bridge being 18′ 0″ wide. On account of the low level of Soochow and North Soochow Roads, particularly the latter, and to obtain the headway required by the Harbor Authorities, the approaches and the suspended floor of the bridge have a gradient of 1 in 20, and even with this rather steep gradient North Chekiang and North Soochow Roads will have to be considerably raised near the bridge. The abutments will be similar to those of the Garden Bridge.

"The South cofferdam was commenced in September, but practically no work was done in November as all the timber available was used at the Garden Bridge. The North dam was started in the middle of December and good progress is now being made; these dams take up the whole width of Soochow and North Soochow Roads, consequently all through-traffic has had to be stopped. The presence of a 25″ water main and a high pressure gas main add to the difficulties of constructing the North dam, while both at this bridge and the Garden Bridge the small amount of space available for the storage of plant and material is quite a serious hindrance to the work."



END VIEW OF CHEKIANG ROAD BRIDGE, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

In his report on this bridge for 1907 Mr. Mayne says:

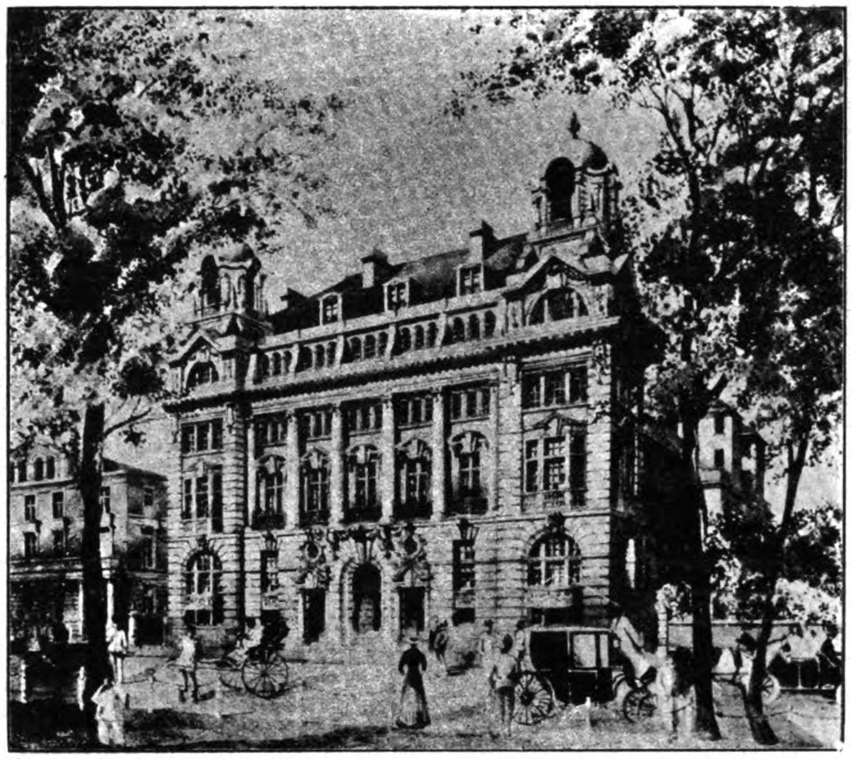
"The cofferdam work of this bridge was not in full swing until the middle of December of last year. The concreting of the South dam commenced late in June and was completed to girder-bearing level by the beginning of September. The North abutment was commenced on August 1 and was finished to the level of girder bearings by the end of September.

"Delivery of the steelwork upon the site commenced on November 27, and by the end of the year the erection was complete and the rivetting well in hand. A tender from the Ewo Lumber Depôt, for decking this bridge with Jarrah planking, has been accepted, and it is expected that the work will be completed by the end of February."

"Seventeen tenders were received for the supply and erection of the steelwork for the two bridges, and included tenders from firms in England, Germany, United States of America, France and Belgium. The highest tender was £34,500 for the Garden Bridge and £16,500 for Chekiang Road Bridge. The lowest and accepted tender *viz.* £17,000 for the Garden Bridge and £7,220 for Chekiang Road Bridge, was that sent in by Messrs. Howarth, Erskine, Ltd., of Singapore, for whom the Cleveland Bridge Co. of Darlington, England, manufactured the steel. A contract was entered into with Messrs. Howarth, Erskine, by which they were to complete the erection of the Garden Bridge in December 1907 and the Chekiang Road Bridge in September 1907. Messrs. Parry & Bidder, of Westminster, were appointed Inspecting Engineers to supervise the manufacture of material and the preliminary building of the structures in England on behalf of the Council.

THE PHILIPPINES ROSIN AND TURPENTINE COMPANY

This company has been formed with a capital stock of ₱150,000 for the purpose of exploiting the pine forests of Benguet in the production of tar, pitch, spirits of turpentine and rosin to meet the ever increasing demand. The prospectus announces Major W. H. Anderson, a leading merchant of Manila, as president, and Mr. Chas. S. Derham, general manager of the Insular Lumber Company, as Vice-President. D. Englebert is secretary and Mr. Wm. A. Derham, treasurer.



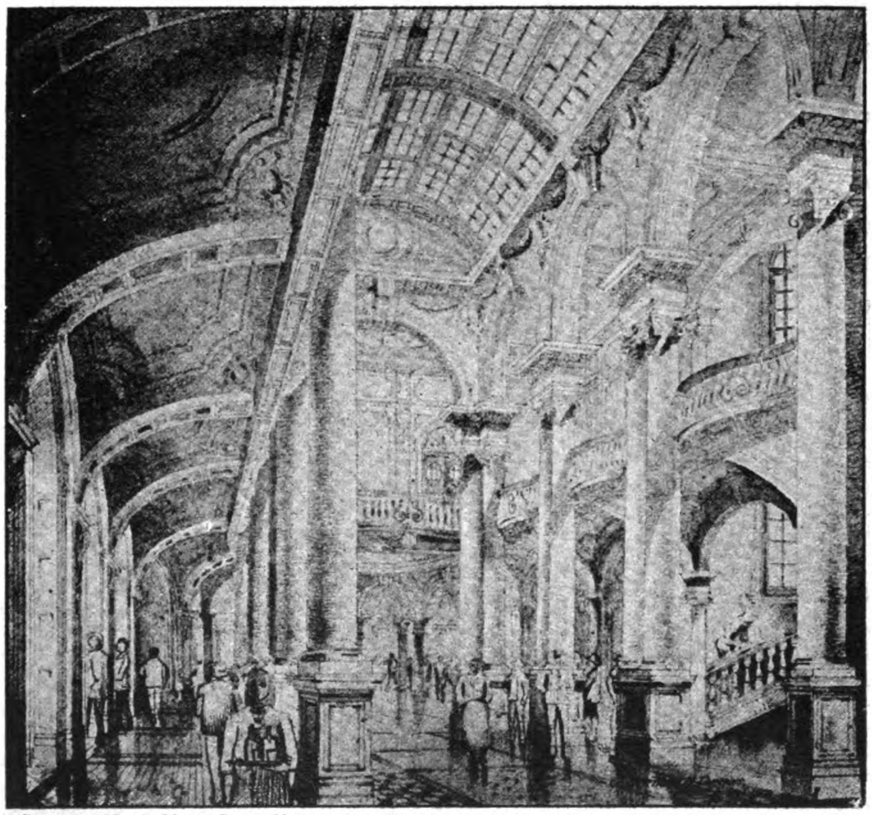
Courtesy, North China Daily News.

THE NEW HOME OF THE SHANGHAI CLUB

The report on the yield of resin from Benguet pine, after a thorough investigation by the Philippine Bureau of Science, compares most favorably with the yield from the most successful resin producing areas in the world. This report gives the yield from one tree in two boxes for 32 hours at 857 grammes. According to the best report made by the United States Bureau of Forestry, one tree in the Southern pine belt yielded 951 grammes from one chipping in seven days.

The local demand in the Philippines for the last fiscal year in the Philippines is shown in the importations of 123,380 pounds of rosin, 25,000 gallons of spirits of turpentine, and 40,924 pounds of tar and pitch.

The company proposes to use only the most improved methods and equipment and its announcement seems to be based on a very conservative estimate. The pine area of Northern Luzon is large and gives unlimited scope for successful operation. The promoters are gentlemen of excellent standing and marked business ability.



Courtesy, North China Daily News.

THE MAIN HALL OF THE NEW SHANGHAI CLUB BUILDING

SHANGHAI LUMBER FOR THE PHILIPPINES

The China Import and Export Lumber Co., Ltd., of Shanghai received an order for one hundred thousand feet of Oregon pine from the Export and Import Lumber Company of Manila this month.

THE HONGKONG TYPHOON, JULY 27 AND 28, 1908

***By REV. JOSE CORONAS, S. J., Assistant Director of the Weather Bureau.**

This typhoon in its leading characteristics and also in its path was very like to that of September 18, 1906. However, the area of the storm was somewhat larger in the present case, seemingly in the proportion of 5 to 3, and besides, the center passed closer to Aparri; it was undoubtedly due to these circumstances that the Manila Observatory was able to announce the existence of the storm in the Balintang Channel on the morning of the 26th, as we shall presently see.

On this occasion it was once more clearly seen how useful it would be in such cases to have telegraphic communication with the meteorological station of Santo Domingo, situated as it is about half way between southern Formosa and northern Luzon. For this reason and because of the extraordinary intensity with which the typhoon struck the neighboring colony of Hongkong, we believe our readers will be interested if we study at some length the path of the storm.

*Reprint from the Bulletin of the Weather Bureau for July, 1908.)

Origin of the typhoon.—The Director of Hongkong Observatory, Mr. F. G. Figg, begins his report on this typhoon, dated August 8, with the following remarks referring to its origin:

"The typhoon which struck the colony on the night of the 27th to 28th July last was possibly formed on the 25th to the eastward of the Balintang Channel. But as this typhoon must undoubtedly be classed as one of small area, in the absence of any data from the Pacific, this can not be certainly affirmed. There is, in any case, no evidence whatever of its existence prior to the 25th. On this day a slight fall of the barometer took place in Luzon and S. Formosa, although pressure remained slightly above the normal over both areas."

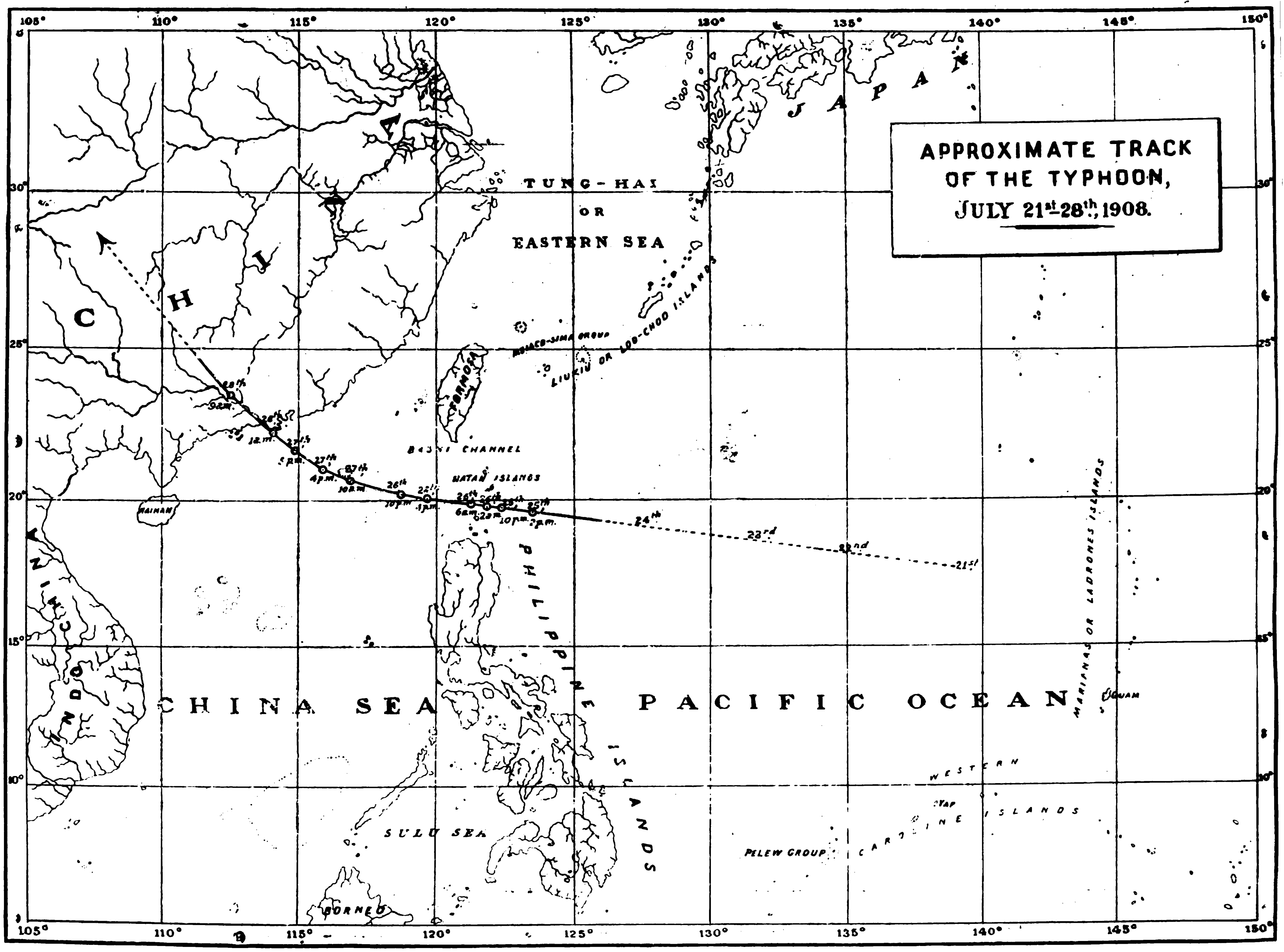
We would have nothing to add to these remarks if the data that we have received from the Western Carolines and the Ladrone Islands did not give us on the 21st some slight indications of the existence of a typhoon to the northwest of Guam. It is to be regretted that we do not possess a greater number of observations from the Pacific, which would enable us to determine more accurately the place of origin or formation of this typhoon. Those made at Sumay, Guam, from the 20th to the 23d of July are given in the following table:

METEOROLOGICAL OBSERVATIONS AT SUMAY, GUAM, LADRONES ISLANDS, JULY 20 TO 22, 1908.

Date and hour	Pressure.	Difference in 24 hours	Wind. Direction.	Wind. Force	Weather.	Rainfall (daily total).
July 20:	*mm.*	*mm.*		0-12		*mm.*
6 a. m...	758.16	—1.81	E	0	0	......
2 p. m...	57.45	+0.04	ESE	0	c	......
6 p. m...	57.88	+0.14	SSE	0	o	1.4
July 21:						
6 a. m...	57.26	—0.90	SSW	1	o	......
2 p. m...	56.61	—0.84	SW	2	o	......
6 p. m...	58.22	+0.34	SW	1	o	53.3
July 22:						
6 a. m...	57.78	+0.52	S	1	o	......
2 p. m...	57.47	+0.86	SE	2	o	......
6 p. m...	57.61	—0.61	SSE	2	o	0 5

The negative difference of the barometer noted at 6 a. m. of the 20th was perhaps owing to a somewhat extraordinary rise, which seems to have taken place early in the preceding morning and was possibly due to some rains or

Plate V.



showers observed from 5.30 to 7.05 a. m. of that day, according to the report of the observer at that station. Whatever it may have been, it is certain that there was in that place a slight fall in the barometer on the 21st with winds from the SSW and SW, which backed to the S and SSE on the 22d. Moreover, the weather was rainy almost the whole afternoon of the 21st, the pluviometer recording an amount of rainfall of 53.3 millimeters.

In Yap, Western Carolines, there were also winds from the S and SW from the afternoon of the 23rd to the morning of the 25th, and the rain gauges collected 52.58 millimeters during the 22d.

These data seem to indicate, although not in a very convincing manner, the presence of a typhoon on the 21st to the NNW or NW of Guam moving westward.

We wish to offer another reason here which will make somewhat more probable the existence of this typhoon prior to the 25th, and hence give greater force to the indications afforded us by the observations of Guam and Yap just mentioned. We refer to the sea swell from the NE, which was observed on the 23d, 24th, and 25th in Borongan, a station on the eastern coast of Samar entirely open to the Pacific. This swell must have been of some importance as the observer there decided to telegraph it to the Central Observatory in the afternoon of the 24th and again in the morning of the 25th.

For these various reasons, in plate V which shows the track of this typhoon, the 21st appears as the date of the beginning, although we can only give probable values to the portion between the 21st and 24th inclusive.

The typhoon in the Balintang Channel.—The following table contains the meteorological observations taken from the 25th to the 27th in Koshun (southern Formosa), Laoag (northwestern Luzon), Aparri (northern coast of Luzon) and Santo Domingo (Batan Islands).

KOSHUN.

Date.	Pressure.	Difference in 24 hours	Wind. Direction.	Wind. Force.	Weather.
July 25:	*mm.*	*mm.*		0-12	
5 a. m.	757.7	+0.5	N	4	c
1 p. m.	57.5	— .5	N	4	c
9 p. m.	56.9	—1.8	N	2	
July 26:					
5 a. m.	54.7	—3	NE	6	c
1 p. m.	56.7	— .8	E	6	....
9 p. m.	56.5	— .4	E	4	....
July 27:					
1 p. m.	57.5	+ .8	E	6	r
9 p. m.	58.7	+2.2	E	4	....

LAOAG.

Date.	Pressure.	Difference in 24 hours	Wind Direction.	Wind Force.	Rainfall (daily total)	Weather.
July 25:	*mm.*	*mm.*		0-12	*mm.*	
6 a. m.	757.53	—0.70	ESE	1	....	o
2 p. m.	56.66	—1.09	WSW	1	92.2	o
6 p. m.	56.30	......	......	......	....	..
10 p. m.	57.10	......	......	......	....	..
July 26:						
2 a. m.	55.90	......	......	......	....	..
6 a. m.	55.08	—2.45	SSE	1	....	r
2 p. m.	55.31	—1.35	E by S	1	56.9	r
6 p. m.	55.20	—1.10	......	......	....	..
10 p. m.	56.80	— .30	......	......	....	..
July 27:						
2 a. m.	55.80	— .10	......	......	....	..
6 a. m.	55.17	+ .09	E	1	....	b
2 p. m.	55.78	+ .47	SW	4	8.1	oq
6 p. m.	56.70	+1.50	......	......	....	..
10 p. m.	58.50	+1.70	......	......	....	..

APARRI.

Date.	Pressure.	Difference in 24 hours.	Wind. Direction.	Wind. Force.	Rainfall (daily total).	Remarks
July 25:	*mm.*	*mm.*		0-12	*mm.*	
2 a. m.	758.03	—0.05	SW	1	....	Veil of A-S in the morning; rain with gusty S winds during the night.
6 a. m.	57.47	— .89	SW	1	....	
2 p. m.	56.86	—1.35	S	1	....	
6 p. m.	55.15	—2.76	SW	2	....	
10 p. m.	55.49	—3.61	S	3	20.3	
July 26:						
2 a. m.	54.39	—3.64	S	4	....	Somewhat squally during early morning; weather improving at night.
6 a. m.	54.25	—3.22	S	3	....	
2 p. m.	55.21	—1.65	SW	2	....	
6 p. m.	55.14	— .01	S.	0	....	
10 p. m.	56.52	+1.03	SW	1	49.8	
July 27:						
2 a. m.	56.22	+1.83	SW	1	....	Lightning in the SW quadrant at night.
6 a. m.	56.43	+2.18	SE	1	....	
2 p. m.	56.54	+1.33	NE	1	....	
6 p. m.	56.54	+1.40	NE	0	....	
10 p. m.	59.21	+2.69	W	1	....	

SANTO DOMINGO.

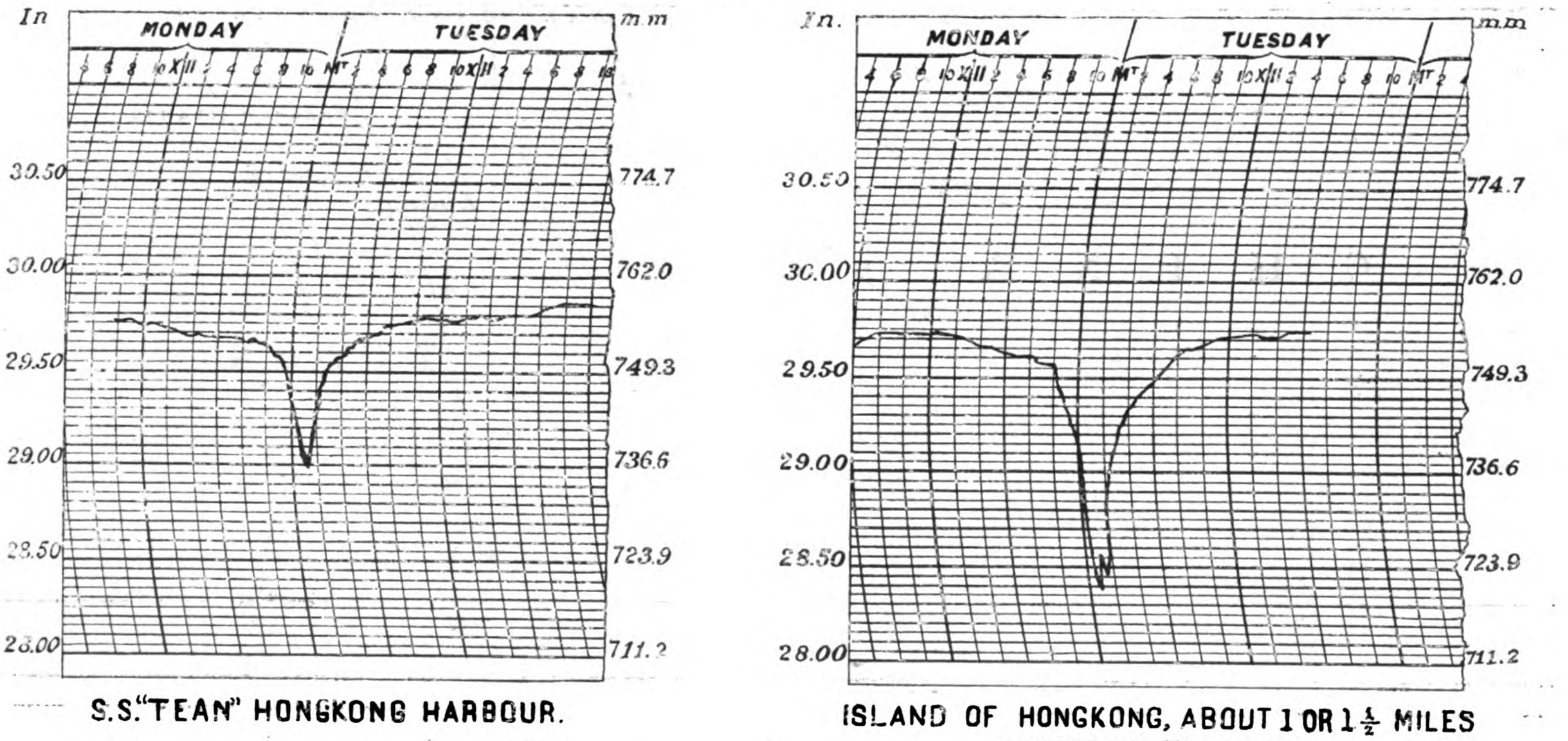
Pressure.	Difference in 24 hours.	Wind Direction.	Force.	Rainfall (daily total).	Remarks.
mm.	*mm.*		0..12	*mm*	
July 25:					Thunders toward N E at 5 p. m.; slight rain with gusty winds at times, and lightning in the SE and SW quadrant at night.
......	......	......	....	....	
756.74	—1.72	NW	3	....	
55.35	—2.41	NW by N	3	13.7	
53.60	......	N	....	....	
53.90	......	NE	....	....	
July 26:					Wind from E, force 5-6 in the early morning, from SE moderating in the morning; rain in the afternoon and night.
51.90	......	......	....	....	
53.81	—2.93	SE	3	....	
55.66	+ .31	SE	1	16.5	
55.70	+2.10	......	....	....	
56.80	+2.90	......	....	....	
July 27:					Drizzle early in the morning; lightning in the SE and NW quadrant at night.
56.20	+4.30	......	....	....	
56.81	+3	SE by E	2	....	
57.03	+1.37	SSE	2	1	
56.90	+1.20	......	....	....	
58.90	+2.10	......	....	....	

The observations of Santo Domingo indicate most clearly the existence of a cyclonic center to the east of the Balintang Channel on the 25th. Those of Aparri, even taken alone and without reference to those of other stations in Luzon and Formosa, show so unmistakably the passage of a typhoon by the north of that station that the observer, Mr. Manuel Delgado, did not hesitate to send the following telegram to the Central Observatory on the morning of the 26th:

Plate VIII.

THE HONGKONG TYPHOON JULY 27–28, 1908.

BAROGRAPHIC RECORDS.



S.S. "TEAN" HONGKONG HARBOUR.

ISLAND OF HONGKONG, ABOUT 1 OR 1½ MILES SOUTH OF VICTORIA.

Marked fall (of barometer). South winds. Continuous rain during night. Second Signal hoisted.[1]

As soon as the Manila Observatory received the observations of Formosa and Luzon taken at 5 a. m. and 6 a. m., respectively, on the 26th, the following typhoon warning was sent to Japan, Formosa, the China coast and Indochina:

July 26, 9.50 a. m.: Typhoon in or near the Balintang Channel, direction unknown.

Before noon we received from Hongkong Observatory this other telegram which confirmed the Manila warning:

July 26, 10.55 a. m.: Typhoon near the Balintang Channel, direction unknown.

The veering of the winds observed in the station of Santo Domingo from the afternoon of the 25th to the afternoon of the 26th was so complete and gradual that had the observations of that station been received in Manila or sent to Hongkong there would have been no room for doubting the existence of a well-developed cyclonic center,[2] which coming from the Pacific, crossed south of the Batan Islands in a westerly direction. It is, indeed, a pity that up to the present we have not been able to secure telegraphic communication with a station of such an importance on account of its geographical position.[3]

The first three small maps of plate VI show the isobars and the position of the cyclonic center at 2 p. m. and 10 p. m. of the 25th and at 6 a. m. of the 26th.

The typhoon in the China Sea.—The weather map for the morning of the 27th seemed to

1 This signal indicates that a typhoon is passing by the north at a considerable distance.

2 We say this, because the Director of the Hongkong Observatory did not think there was question of a severe typhoon, but rather of a depression, until the afternoon of the 27th. We copy here a part of the daily weather notes issued by that Observatory on the 26th and 27th:

On the 26th at 11.45 a. m.: "The barometer has fallen moderately over Formosa and Luzon owing to the appearance of a depression in the neighborhood of the Balintang Channel."

On the 27th at 12.15 p. m.: "The depression, which at present gives no indication of being a severe disturbance, has moved westward. It appears to be situated about 300 miles to the SE of Hongkong."

The Manila Observatory gave out the following information referring to this typhoon in the daily weather notes for the 26th, 27th and 28th:

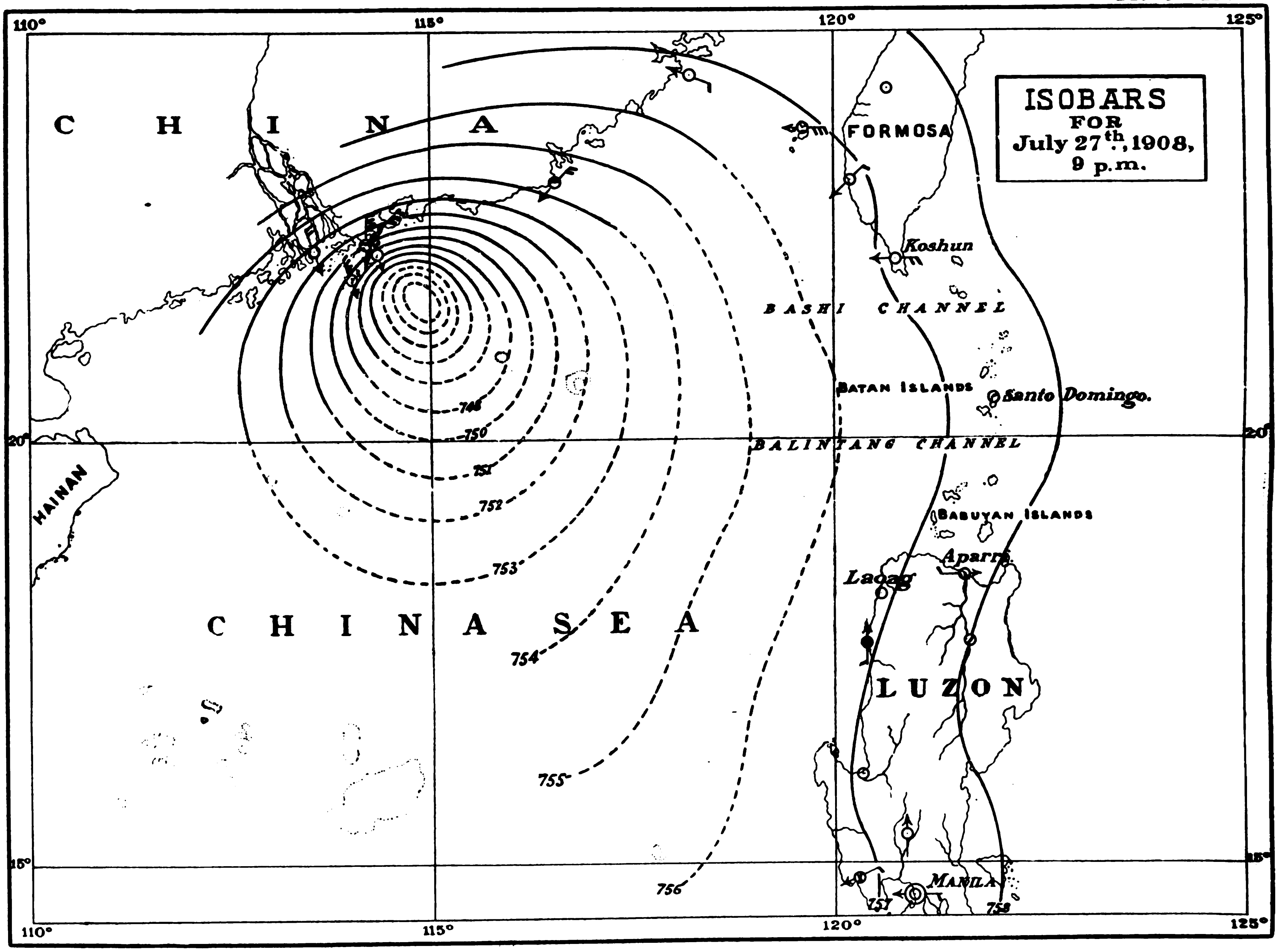
"July 26, 12.20 p. m.: Pressure is lowest over the Balintang Channel. * * * A typhoon seems to have been developing since yesterday evening near or over the Balintang Channel: its direction, however, can not yet be ascertained."

"July 27, 12.15 p. m.: Pressure is lowest over the northern part of the China Sea. The typhoon situated yesterday over the Balintang Channel seems to have moved away westward."

"July 28, 12.20 p. m.: It seems that the typhoon of the preceding days entered the Continent last night not far from Hongkong."

3 As a result of the typhoon we are now discussing, the Governor-General of Hongkong wrote to the Governor-General of the Philippines suggesting to him that information from the Batan Islands would be of great value both to Manila and to Hongkong, and urging in favor of the establishment of a wireless station at Santo Domingo de Basco. The Governor-General of the Philippines after having obtained the favorable opinion of the Director of the Weather Bureau took up the matter with the Insular postal authorities and replied to the Governor-General of Hongkong stating that he hoped there may be sufficient money available to carry into effect the project suggested by His Excellency and that, in case there was no money available for the purpose, he would apply for an appropriation to the Legislature at its next session.

Plate VII.



N.B.-The barometric readings have been corrected to standard gravity.

indicate quite clearly the existence of a typhoon in the northeastern part of the China Sea to the west of the Balintang Channel and moving in a westerly direction. Accordingly the Manila Observatory sent a second typhoon warning to Japan, Formosa, the China coast and Indo-china, as follows:

' 27th 11 a. m.: [Typhoon west of the Balintang Channel, moving west.

This warning was likewise confirmed by a telegram from Hongkong Observatory:

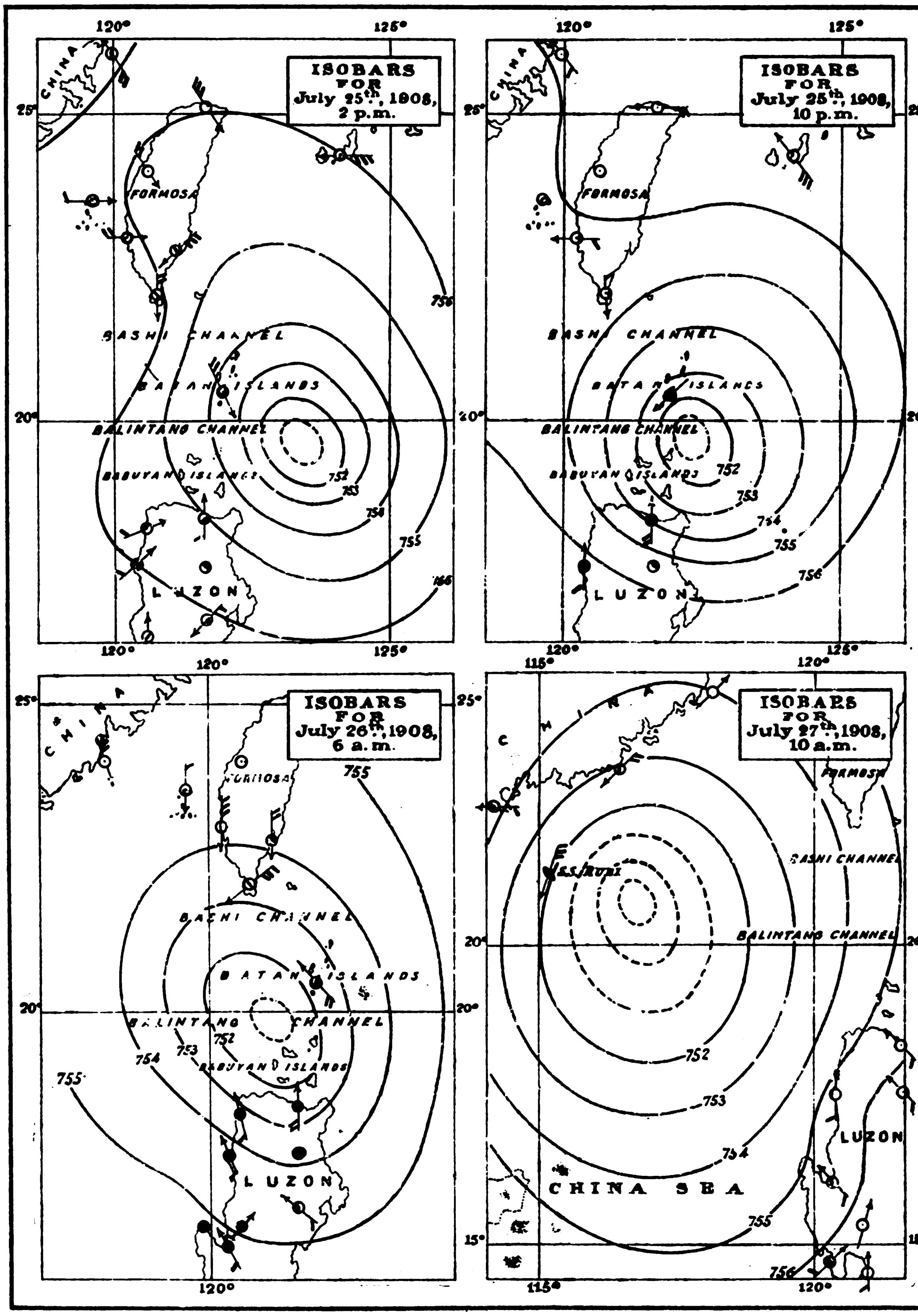
'27th, noon: Typhoon SE of Hongkong moving west."

We regret that we have so few observations from the China Sea made during the passage of this typhoon. The only records that have come into our hands are those of the steamer *Rubi*, which sailed from Manila for Hongkong at 10 a. m. of the 25th, and therefore felt the influence of the storm, although she anchored in Kowloon Bay five hours and a half before the vortex passed south of Hongkong. These observations are given in the following table:

METEOROLOGICAL OBSERVATIONS MADE ON BOARD THE STEAMER "RUBI," JULY 25 TO 27, 1908.
(Captain, Mr. R. Almond.)

Date.		Position. Latitude N.		Longitude E.		Pressure.	Wind. Direction.	Force.	Weather.	Remarks.
		o	'	o	'	mm.		0-12		
July 25:	10 a. m.	14	35	120	59	758.68	Calm	.....	o	Leaving Manila for Hongkong.
	4 p. m.	....		....		57.92	SW	1	o	
	10 p. m.	....		....		57.92	W	2	o	Heavy rain at times.
July 26:	10 a. m.	....		....		56.14	WSW	4	....	Westerly swell.
	Noon	17	58	117	40	....	W to NNW	4	....	Dull with rain.
	4 p. m.	....		....		54.37	W	3	....	Continuous rain.
	10 p. m.	....		....		54.62	NW	3	....	Lightning; NE swell.
July 27:	10 a. m.	....		....		53.60	NNE	5	....	Rain; easterly swell.
	Noon	21	34	114	48	....	....	.....	....	Rough confused sea.
	4 p. m.	....		....		51.83	NNE	6	....	Swell from ESE, also heavy bank to the E.—Barometer rose 0.76 mm. from 4 p. m. to 7 p. m.

Plate VI.



N. B.-The barometric readings have been corrected to standard gravity

The fourth small map of plate VI represents the isobars and the position of the typhoon at 10 a. m. of the 27th.

The typhoon in the neighborhood of Hongkong.—If the typhoon had continued its movement of translation westward, there would have been no fear that Hongkong would have suffered much from the cyclone. But, unfortunately for the neighboring colony, a quite remarkable change took place in the direction of this movement in the afternoon of the 27th. The typhoon was moving W by N in the morning of the same day, but it inclined more toward the north in the afternoon, so that, by the evening, it was moving in a NW by W direction. See in plate VII the isobars and the position of the cyclonic vortex at 10 p. m. of the 27th.

The Hongkong Observatory continued watching carefully the progress of the storm, and gave out the following timely warnings and orders from 6 p. m. of the 27th:

"On the 27th at 6 p. m.: Orders given to hoist the Black S. Cone and Drum (indicates a typhoon SE of colony within 300 miles).

"At 9.30 p. m.: The typhoon appears to be moving toward the coast in the neighborhood of Hongkong.

"At 11.15 p. m.: Order issued to hoist No. 3 night signal and fire three bombs."

The cyclonic center passed south of Hongkong Observatory at a distance of less than 10 miles at 1 a. m. of the 28th. We give here part of the report mentioned above of the Director of Hongkong Observatory:

"The morning observations of the 27th showed a moderate increase of pressure in Luzon (Aparri 29.78, wind SE, a light air, clear sky). The observations from Koshun did not reach the Observatory, but at Swatow the barometer read 29.71, wind NE, force 1. In Hongkong, where pressure had given way two-hundredths of an inch only, during the past 24 hours, and was below the normal by the same amount, the barometer at 10 a. m. read 29.75, wind E, force 1. At Gap Rock a gentle breeze blew from NE. These observations faintly indicated the existence of the depression but gave no clue whatever as to its severe character. It was believed to be situated at that time about 300 miles to the SE of the Colony and notice to that effect was given, and Red signals were hoisted at 12.15 p. m.

* * * * * * * * * * *

"Perhaps the best evidence of the existence of the typhoon was furnished by clouds. The morning broke fine, the sky being almost cloudless. Shortly after noon a bank of clouds of the cirro-stratus type was observed bearing SE by E, its advancing edge being at an altitude of about 30°. At 4 p. m. this pall had covered nearly the whole sky except just above the NW horizon where it was still clear. A few patches of alto-cumulus below it were seen to be coming from NE by E in the afternoon. The direction, however, was backing, a significant fact. At 6 p. m. they came from NE by N and it was then that the Black signals were hoisted.

"The barometers, still only 0.02 inch below the normal at 4 p. m., now began to fall and the wind, which had been chiefly a light breeze from E during the day, shifted to the North. Gap Rock at 4 p. m. reported 'slight swell from SE,' the wind there at the time being a gentle breeze from NE. At the same hour Waglan reported a moderate breeze from ENE. At 7 p. m. it blew a fresh breeze from NNE at Waglan, and a gentle breeze from N at Gap Rock, the swell still being reported from the latter station as "slight from SE." It thus appears that sea swell in this instance had not outrun the advancing storm to any considerable distance.

"The following observations show the conditions prevailing at 9 p. m. Observatory barometer 29.64, wind north, force 5, Waglan 29.58, NNW, 7, Gap Rock 29.57, NNW, 6. The swell reported by the latter station was now 'moderate from ESE.' These observations appeared to indicate the probability of the typhoon center reaching the coast in the neighborhood of the Colony, and I then wired a message to that effect to Hongkong for distribution. The barometer at the Observatory still read only 0.12 inch below normal, but the gradient between here and the lighthouses was increasing.

"The barometer now commenced to fall quickly and the wind to rise and at 11.15 p. m. (standard time) No. 3 night signal, accompanied by the firing of the three bombs was made. This indicated that the gale then blowing was likely to increase to full typhoon force. The following observations are from Observatory records, the time being given in Hongkong mean time.

METEOROLOGICAL OBSERVATIONS MADE AT HONGKONG OBSERVATORY JULY 27 to 28, 1908.

Date.	Pressure.	Wind. Direction.	Wind. Velocity (miles per hour).
July 27:	*mm.*		
6 p. m.	753.10	N	6
7 p. m.	53.10	N	12
8 p. m.	52.59	N	17
9 p. m.	52.84	N	26
10 p. m.	51.83	N	39
11 p. m.	49.03	N	53
Midnight	42.68	NE by N	75
July 28:			
1 a. m.	34.81	ESE	*72
2 a. m.	44.21	SSE	81
3 a. m.	48.78	SSE	54
4 a. m.	51.32	S by E	42
5 a. m.	52.59	S by E	36
6 a. m.	53.60	S	23

* The record of wind velocity is not reliable probably from midnight. The spindle carrying the cups snapped just above the supporting arms at some time during the night. The cups however continued to revolve; but loss of speed during the high velocities is certain to have occurred.

"The barometric minimum, 28.85, occurred at 1.03 a. m. The wind moderated somewhat at about 1 a. m.—the direction was veering quickly toward SE and S—but rose again a few minutes later and blew with greater fury than before, the squalls being not only terrific but also of long duration between 1.15 a. m. and 1.45 a. m. At about 2. a. m. the wind began to moderate. It is probable that the greater part of the damage on shore occurred during this interval. In the Observatory compound nearly all the damage was caused by the SSE wind trees and other debris falling toward NW and NNW.

* * * * * * * * * * *

"Observations subsequently received from Waglan and Gap Rock show that it blew with full typhoon force at the former station, from NE at midnight and from ENE at 1 a. m., the barometer falling to 28.70 at the latter hour. At Gap Rock typhoon force was not recorded. The lowest barometer reading, 29.24, occurred at 1 a. m. with the wind a whole gale (force 10) from west, and subsequently at 2 a. m. and 3 a. m. from SW, when it began to moderate. The gradient between the Observatory and Waglan at midnight was equivalent to just over half an inch in 15 miles."

The captain of the steamer *Rubi* has favored us with the following observations made aboard his ship during the passing of the storm:

It is not our intention to offer here a list or summary of the damages and losses of life caused by this typhoon both in the city and in the harbor of Hongkong. We will only copy a few lines from a local newspaper in order that our readers may have an idea of the severe intensity of the storm:

"The typhoon which visited the colony on Monday night was a more severe one than that of the 18th of September, 1906; but happily we have not the same sad tale of disaster to chronicle. It caused more damage ashore than the 1906 typhoon, but far less afloat. This was due solely to the fact that the Observatory on this occasion gave the community timely warning of its approach and so enabled adequate precautions to be taken."

In Plate VIII can be seen reproductions of two barographic records obtained aboard the steamer *Tean* (at anchor in the port of Hongkong);[1] and in the vicinity of Mount Kellet in the Island of Hongkong about 1 or 1½ miles south of Victoria.[2]

The typhoon passed NE of Macao and was nearest to that city at 2 a. m. of the 28th when the barometric minimum 741.99 millimeters was registered there with westerly winds of hurricane force. The observations made on the 27th and 28th in the Observatory of that port are included in the following table:

METEOROLOGICAL OBSERVATIONS MADE AT MACAO OBSERVATORY, JULY 27 TO 28, 1908

Date.	Pressure.	Wind. Direction.	Wind. Force.	Weather.
July 27:	*mm.*		0-12	
4 a. m.	754.68	SE	0-1	c
10 a. m.	55.00	SE	0-1	c
1 p. m.	54.89	ENE	1	c
4 p. m.	53.36	Calm	......	o
10 p. m.	52.84	NNW	2-3	od
Midnight	50.00	NNW	2-3	oqrl
July 28:				
0.30 a. m.	49.47	NW	5-6	oqrl
1 a. m.	46.98	NW	10	oqrl
1.30 a. m.	43.65	NW by W	11-12	oqrl
2 a. m.	41.99	W	11	oqr
2.30 a. m.	42.09	W by S	11	oqr
3 a. m.	43.29	WSW	10-11	oqr
3.30 a. m.	44.58	S	10	oqr
5 a. m.	48.87	S	8	oqr
8 a. m.	54.02	S	7	opq
10 a. m.	55.44	SW	5-6	oq

The typhoon on the Continent.—Early on the 28th the typhoon was on the Continent, its center passing south and west of Canton. The following statement of its effects at that city is taken from *The Hongkong Daily Press*:

"The damage done by the wind and rain is heavy and unprecedented. Over two hundred houses have collapsed, in some cases, with loss of life. The telephone, electric lightning, and telegraph lines are down in every street and the

[1] We are indebted to Capt. D. W. Outerbridge for the original of this curve. Another similar curve obtained aboard the S. S. *Fausang* was furnished to the Manila Observatory by Captain Malkin through the kindness of Mr. Stuart J. Fuller, American Vice-Consul General at Hongkong.

[2] This is a copy of a reproduction published by the *South China Morning Post* August 8, 1908.

METEOROLOGICAL OBSERVATIONS MADE ON BOARD THE STEAMER "RUBI," JULY 27-28, 1908.

(Captain, Mr. R. Almond.)

Date.	Position.	Pressure.	Wind. Direction.	Wind. Force.	Weather.	Remarks.
		mm.		0-12		
July 27: 7.27 p. m.	Kowloon Bay.	....	......	....	......	Barometer fell 0.76 mm. from 7 p. m. to 8 p. m.
10 p. m.	do.	751.57	NE	7	q	Continuous rain.
11 p. m.	do.	48.52	NE	9	q	Do.
Midnight	do.	41.67	NE	12	q	Hurricane force.
July 28: 1 a. m.	do.	35.32	E to SE	12	q	Wind shifted from E to SE blowing with terrific force. Typhoon center would be at that time about 8 miles away between Waglan and Gap Rock. At the height of the squall took both aneroid and typhoon barometers both quivering between 715.00 mm. and 722.62 mm. but as cabin was shaking a good deal did not take them as a reading, but a few minutes afterwards got them both at 735.32 mm. steady.
2 a. m.	do.	40.40	SE	12	q	Hurricane force.
3 a. m.	do.	50.56	SSE	9	q	Wind force decreasing: frequent squalls.
4 a. m.	do.	51.06	SSE	7	......	Weather clearer.
5 a. m.	do.	52.33	SSE	5	q	Squally with rain and decreasing.
6 a. m.	do.	53.60	SSE	4	q	Do.
7 a. m.	do.	53.86	S	3	q	Do.
8 a. m.	do.	55.38	S	3	q	Do.
10 a. m.	do.	56.14	S	1	......	Weather clearing up.
4 p. m.	do.	57.16	SW	2	......	Continuous light rain.

regular service will take a few days to restore. It is dangerous to move about the city just now as the walls that have been damaged are coming down now and then with a crash. * *"

Some remarks on this typhoon.—The typhoon increased in speed in the China Sea, the rate of velocity being about 8½ miles per hour when it crossed south of the Batan Islands, and about 14½ miles per hour when it struck Hongkong. It seems that it increased likewise in depth after it left the Balintang Channel; but once in China it soon began to fill up gradually as is generally the case in the typhoons which land in the Asiatic Continent.

According to the Director of Hongkong Observatory, when the typhoon passed close to that colony, "the radius of the area over which strong gales blew does not appear to have exceeded 35 miles in average." The area over which winds with full typhoon force were recorded seems to have been of less than 20 miles radius.

SHANTUNG COAL RAILWAY

Many are the difficulties in the path of the Chinese who undertake railway construction. It is now nearly a year and a half since operations began on the coal road in the Yiehsien district, S. W. Shantung, near the Kiangsu border. First, the permission of the Board of Communications, Peking, had to be obtained, a transaction which, report has it, cost the railway company the sum of a hundred thousand taels. Then extensive land purchase had to be made for the 30 miles of railway from the port on the Grand Canal, Tai-en-chwang to the town, Tsao-chwang, near which the mines are located. These two towns give the railway its official name the Tsai-tsao Railway.

In the vicinity of Yihsien, the land becomes more valuable and some is held by wealthy families who have taken it into their perverse heads to block the enterprise by holding out for exhorbitant prices. The matter, after being in suspense for eight months or more, is now to be arbitrated by a deputy of the Shantung Governor.

Notwithstanding, progress is being made. The line is modeled as to gauge and construction after the German line from Tsingtau to Tsinan. Some three miles have been built from Tai-en-chwang and a number of cars have been put together and are being used to send forward construction material. The expectation is that Yihsien will be reached next autumn. An engine house is being built at Tienchwang and those in charge would put an engine together could they find all the parts. One half the building material, ordered through the firm of Messrs. Arnhold Karberg & Co. who have the entire contract for supplies, is now delivered.

All the work thus far has been done by Chinese. The Chief Engineer, Mr. Kuoa from Canton, impresses one with being a bright man. The first locomotive engineer is from Tsingtau and the mechanic who is putting the cars together is from Tsinan. Kilns erected on railway premises are burning brick for the construction of stations. Work is going forward on all sides steadily though slowly.

The boilers for stationary engines in the mines have also arrived. The mines are of immense importance as one of the principal sources of the coal supply of the Tientsin-Pukow line. It is now an acute question as to who shall build the connecting railway between the mines and the trunk line 15 miles to the west.

*ELECTRICITY FOR SANDAKAN

We have been favored with a copy of an agreement entered into between the Government and the British Trading Company, of 3 Godliman Street, St. Paul's Churchyard, London, under which the Company have acquired certain exclusive rights for a period of ten years, for the supply of electric light and power to Government and private consumers within the town limits. It would be wearisome to quote long clauses from a long agreement, but the following facts will be of interest.

1. The Company is to be in a position to supply electric light within 24 months from 8th December, 1908.
2. The first system of distributing mains will be laid in Jalan Kapok and Lorong Lima.
3. The current for private lighting will be supplied on the meter system at a charge of 30 cents per unit, the consumer bearing the cost of installation beyond the meter. The Company will provide the first supply of incandescent bulbs, and the public may instal their own wires if desired.
4. The Government have entered into a contract to take a supply of current for public lighting.
5. The supply of current will be continuous for 24 hours in each day.

We are informed on good authority, though we make the statement with due reserve, that the cost of electric light per unit in England varies in different localities from 7½d to one shilling. If this is the case, the terms quoted above are distinctly favorable. The fact also that the current will be available all day will enable consumers to install electric fans—no small boon in a hot office.

Although the rights granted to the Company are exclusive, the monopoly is of a very modified nature. The Company will have to compete first with kerosine, and secondly with the many varieties of artificial lights such as 'Lux,' 'Kitson,s,' acetylene, etc., which are daily being improved and cheapened.

* British North Borneo Herald.

*CENSUS OF PEKING

The census was made by "families," and these in turn were divided into "principal families" and "additional families," or into "principal tenants" and "subtenants." The total number of families in the inner or Tartar city is given as 79,009, and in the outer or Chinese city as 46,999, making a total of 128,008 families.

Recent Japanese official works give the number of people per household in the urban districts of Japan as about 4.99. An unofficial census made in 1907 of the city of Swatow, in Kuang-tung Province, works out 5.4 per household, and the unofficial census of 1881 of Wen-chou, in Chekiang Province, 5.14. Chinese officials and others who have been consulted on the question think that in the case of Peking the number of people per household is probably higher than in other localities in China, some saying that it should be reckoned as high as 8. I think that 5.5 may be taken provisionally as a fair approximate average. This would make the present population of Peking, exclusive of the suburbs (but they are unimportant), 693,044 persons.

As supplementing the above census of population I forward an official statement of the schools, governmental and private, mostly on western lines, together with the number of students of either sex, now open in the 23 police districts of Peking. From this it appears that there are 183 schools for boys and 17 for girls, with a staff of 1,200 men teachers and 100 women. The attendance is 16,282 boys and 771 girls.

Assuming that 25 per cent of the population of Peking is below 15 years of age (in Japan this portion of the population is reckoned at 33 per cent, but in view of the rate of infantile mortality in China I have adopted a lower per cent), we have 173,261 children, one-half of which (86,630) probably is of age to attend school. The result of two years' work is highly creditable to the energy of the officials and shows the interest taken in the education of children by the people.

§FERRO-SILICON POISONING

The recent cases of death from inhalation of fumes from ferro-silicon on the s.s. *Ashton*, by which five Russian immigrants lost their lives at sea on the night of December 12-13 last, have been investigated by the Royal Institute of Public Health, and the report thereon has been sent us.

"Ferro-silicon is a coarse metallic powder, which, under ordinary circumstances, possesses no particular odor, but if confined, powdered or moistened, a distinct phosphorus odor can be detected. It is manufactured by heating a mixture of iron ore, quartz, coke, and lime in an electric furnace, and is used by steel makers as a convenient method for the addition of silicon to certain grades of steel. A little consideration will give some indication of the nature of the poisonous gases likely to be formed when this product is moistened. Many minerals contain phosphoric acid and arsenic. Consequently, when such a mixture, as above described, is strongly heated, phosphides arsenides, carbides, and silicides may be formed, and these may, under certain conditions, evolve phosphoretted hydrogen, arseniuretted hydrogen, acetylene, and silicon hydride.

In order to determine which of the above gases is mainly evolved when ferro-silicon is moistened, the following experiments were made:—

(a) Two hundred grammes of the powdered and moistened substance were placed in a horizontal glass tube, 19 ins. long 1 in. in diameter. This tube was connected with another tube about 11 ins. long and ½ in. in diameter, and filled with small pieces of potassium hydrate in order to absorb any sulphuretted hydrogen. Air was then gently drawn through the tube for about three hours, and allowed to pass through a 10 per cent. solution of silver nitrate contained in a De Koninck absorption apparatus. A dark precipitate was immediately produced in the silver solution, and at the end of the period was considerable in amount. This precipitate might be due to all or any one of the above-mentioned hydrides.

(b) Experiment (a) was repeated, with the exception that the potassium hydrate tube was removed and ammoniacal cuprous chloride solution substituted for the silver nitrate. As no precipitate was formed in the copper solution it is evident that acetylene is not formed under these conditions.

(c) Experiment (a) was repeated, but in this case the gases were passed through nitrite acid. The acid solution was evaporated almost to dryness, hydrochloric acid added, and the mixture evaporated to complete dryness. The addition of hydrochloric acid and subsequent evaporation to dryness was repeated and the residue dissolved in distilled water, when no trace of insoluble silica was found. Silicon hydride is, therefore, not evolved from moistened ferro-silicon at ordinary temperatures. Having excluded acetylene and silicon hydride from the gaseous mixture, there remains the possibility of phosphoretted and arseniuretted hydrogen.

(d) Some of the silver solution obtained in experiment (a) was then filtered, and the filtrate, which would contain arsenic (if present in the gases) as arsenic acid, was introduced into a Marsh-Berzelius apparatus, with the result that a slight mirror was obtained after prolonged heating. Some of the precipitate was then introduced into the apparatus, when the characteristic phosphorus flame was immediately produced, being most marked, and this, in spite of the facts that the heating of the glass tube was continued, which would tend to decompose phosphoretted hydrogen, and that the flame was burning at the end of a tube not furnished with a platinum jet. It is therefore evident that, although arseniuretted hydrogen is produced in small quantities, the chief gas evolved is undoubtedly phosphoretted hydrogen, a gas which is stated to be so poisonous that 0.02 per cent. of it in air is fatal to small animals within half-an-hour.

The result, therefore, of the inquiry into the cause of death of the five Russian immigrants on board the s.s. *Ashton* is that they died from the effects of gaseous emanations from the cargo (ferro-silicon), mainly attributable to the presence of phosphoretted hydrogen.

This investigation is of great scientific interest, as possibly it is the first occasion in this country in which deaths have been known to be attributable to this cause. * * * *

The pathological effects of such poisonous gases as phophoretted hydrogen and the like are at present so little understood that it has been determined to undertake further experiments in connexion with this subject."

*Consular Reports.
§*Mining Journal.*

FAR EASTERN COMPANY REPORTS

THE GREEN ISLAND CEMENT COMPANY.—The twentieth annual meeting of the Green Island Cement Co. was held at the office of the general managers, Messrs. Shewan, Tomes and Co., on Saturday, April 3. Mr. R. Shewan presided and those present included Sir Paul Chater, Dr. J. W. Noble (directors), L. F. Campbell, J. F. Wright, P. C. Potts, A. G. Gordon, W. A. Dowley, A. Babington, C. Klinck, J. A. Young and Choa Leep Chee.

The Chairman said—Gentlemen: We have now the pleasure to lay before you our report and accounts for 1908, copies of which are in your hands. We propose, after making the usual allowance for depreciation of the Company's plant, machinery and buildings, etc., and placing the nominal amount of one thousand dollars to reserve fund in accordance with the Articles of Association, to pay a final dividend of fifty cents per share, making nine per cent. for the year, and carry forward to new account $3,756.74. The dividend is $40,000 less than last year when we paid ten per cent., but our sales are actually only $20,000 less, the other $20,000 being absorbed by depreciation.

As I anticipated at the last meeting, we have done a slightly larger turnover and considerably increased our production but our sales were not so good in their results, for one thing, our two large local contracts for the docks were completed, and thus two good outlets for our cement were closed to us. It is pleasant to be able to say that the engineers and contractors for both these important undertakings were entirely satisfied with Green Island cement, and have given it the highest testimonials for quality. Last year the work of the factory was hampered and interfered with by strikes of the coolies engaged on the cement kilns. They had become very troublesome, refusing to work when they thought fit, and at other times demanding higher wages. In July this culminated in all the men at four kilns leaving, and to train men to take their place took us two months. Finally, in November, all the men threatened to strike, upon which we decided to let them all go, and to start afresh with an entirely new set. These new men have, of course, taken us several months and much trouble to educate, but the lesson appears to have had its effect, and we look for peace in future. Our sales were not affected, as we had plenty of stock on hand, but our output was of course reduced by the loss of so much working time. Our expenditure during the year on capital account has been heavy but no item has been incurred that was not absolutely necessary. At Macao the principal expenditure was for reclaiming land for mud drying, for retaining-walls necessitated by a land slip, and for a new boiler for the patent dryers. At Hok Un there was spent about $40,000 on buildings, and about $90,000 on plant and machinery made up of a variety of items, such as conveyors, cement handling plant, clay loading plant, boiler makers shop, carpenters shop, new saw mill, cooperage, elevator house for cement bins, etc., etc., too numerous to detail, and no one item very large in itself. The additional outlay on Launches and Lighters explains itself. We are doing a large business in the harbour and up the river to Canton and Macao, and more tonnage of this kind was badly wanted. I am glad, however, to say that our heavy expenditure on capital account is now drawing to a close. It followed naturally on the expansion of our business, and the extension of the works, but our plans for the additional facilities and accommodation required are now almost complete and all we estimate we have to spend this year is about $30,000 for a second packing house, about $20,000 for another boiler, and some $10,000 on sundry small items. At Deep Water Bay we have added a new cement pipe machine which will turn out pipes of cement concrete, at much less cost than our present glazed pipes, as kilns to burn these pipes are not required. Cement pipes are coming greatly into vogue all over the world, and we believe we shall have a good sale for them once the prejudice in favor of the glazed pipe has been overcome. The result of last year's working of this factory is very unsatisfactory, but is not so discouraging as it appears, as it is in great measure the result of our striking a run of bad clay which rendered the contents of as many as fifteen kilns quite worthless while the wages and expenses of about three months were thrown away. At present we are turning out first class pipes, bricks and tiles, the demand for which appears to be increasing, especially from the outports. In spite, therefore, of the last year's result we have not given up hope of making this department pay its way. I am told that it has been said that we are over-capitalized, but no one who knows anything about cement factories would say this. So far from that being the case, the facts are that an equally complete and up to date factory could not be installed for what our works and land stand at, even if you threw in the land for nothing. The fact is that few appreciate the extent of our installation. It is not by any means the small undertaking it was a few years ago, and I doubt if any single factory in England or the continent is better equipped or has more modern plant and machinery than we have. The item of stores in stock at Hok Un $163,200 may seem large but it is not really so, as it comprises not only ordinary stores but spare parts and renewals for the various mills and other machinery and also stocks of firebricks for kiln linings. All these things have to be obtained from home and as any one part is liable to be wanted at a moment's notice and its absence might have serious consequence, we are bound to keep a good stock on hand for any emergency. I do not think I need labor this point, for all practical men will appreciate its importance and can understand how the want of spares might throw a whole mill out of work, but I wish to make it clear to you that the item includes much more than stores in the ordinary sense of the word. As for the future and this present year in particular it has commenced well, the first three months being better than the same three last year, the greater portion of our whole output of cement is contracted for and we anticipate no difficulty in disposing of the rest at good prices. Of course, in certain markets we have to meet and accept competitive prices, but so far we have had no trouble in holding our own. It is true that the present low price of silver is against imported cement, and so far in our favor, but on the other hand it has raised the cost of coal laid down here. Our raw material too costs slightly more owing to the imposition of lekin duties in the interior. On this point I should like to remove the impression which has been made by reports circulated to the effect that we were unable to obtain regular supplies of raw material. We have had no difficulty whatever in that respect and no trouble beyond the result usually consequent upon an increased demand —I mean a rise in the price—and that trouble we have obviated by making arrangements to obtain some of our supplies from Haiphong, a step which has already had a perceptible effect on the attitude of the Chinese contractors. But the reports that we could not get stone and that our supplies were running short were quite untrue, and had no foundation, and could only have been spread by interested parties. As far as we can see now there need be no anxiety either about the supply of raw material on the one hand or about the disposal of the finished product on the other. The use of cement has increased enormously within the last few years, and it seems to me that if there is any climate for which reinforced concrete is peculiarly adapted for buildings and structure of all kinds it is that of this country. We know by bitter experience how ill fitted our tiled roofs are to stand a typhoon, and how little resistance wooden beams and rafters offer to the attacks of white ants. It is, however, now being borne into everyone's mind that wood is a very wasteful and poor material for houses out here and that iron and concrete are altogether preferable, being far more durable and better able to resist the climate and are actually cheaper and more economical in the end. All this makes for increased consumption of cement, and to further this object and to provide an object lesson to builders and contractors we have gone to some trouble and expense to shew over at our works what can be done with concrete reinforced by wire or metal. We have also taken up the making of concrete blocks for building purposes to take place of bricks, and have just finished a godown for our friends the Standard Oil Co. which I think will prove a revelation to most people of what can be done in this way. The uses and consumption of cement are thus multiplying all over the world, making it one of the most important articles of commerce to-day and in China, particularly with the advent of railways and other public works which must follow as the country opens up and begins to utilize its resources, there must be always a steady and growing market for this Company's product. I think, therefore, that when I say you need have no anxiety about the future of Green Island Cement, I am only speaking the sober truth and am not saying more than the facts themselves warrant.

There were no questions and the Chairman moved the adoption of the report and accounts as presented. The motion was seconded by Dr. J. W. Noble and carried unanimously.

Mr. M. Moreno proposed that Sir Paul Chater, Dr. J. W. Noble and Hon. Mr. W. J. Gresson be re-elected as consulting committee. The motion was seconded by Mr. Dowley and carried.

Mr. Wright proposed that Messrs. W. H. Potts and A. O'D. Gourdin be re-elected as auditors. This was seconded by Mr. Gordon and carried.

The chairman: That is all the business, gentlemen. I am very much obliged to you for your attendance. Dividend warrants will be ready on Monday morning.

CHINA AND MANILA STEAMSHIP CO., LTD.—The twenty-sixth ordinary general meeting of shareholders in the China and Manila Steamship Co., Ltd., was held at the offices of the general managers, Messrs. Shewan, Tomes and Co., at noon, April 3rd. Mr. R. Shewan presided and those present included Dr. J. W. Noble, Messrs. H. P. White (directors), A. G. Gordon, C. Klinck, R. C. Walker, A. Temperley, H. F. Campbell, A. A. Cordeiro, and G. Moffatt (secretary).

The Chairman said:—Gentlemen, We now lay before you the report and accounts for 1908, copies of which have been in your hands for some time. I regret that we have to again come before you with a poor showing for the year's work, but the same tale is being told by all shipping companies all over the world, and we cannot expect to be an exception. We all know that the trade of the world has shrunk in the last two years, but unfortunately for shipowners the supply of tonnage does not shrink equally rapidly, and until supply and demand are better adjusted than they are at present we cannot expect to see any great improvement in freights. Our earnings in 1908 were, however, rather more than in 1907, in spite of a heavy falling off in the cattle trade, but this was more than offset by increased expenses, as our coal bill, owing to the drop in the value of the dollar, was some $17,000 higher, our portage bill, our officers being all paid in sterling, was for the same reason nearly $5,000 more, while repairs were about $8,000 in excess of last year, a total of say $30,000, thus turning a profit on working last year of $18,000 into a loss this year of $12,000. But as I said a twelvemonth ago, we must not be disheartened, as we are only going through a cycle of bad trade, the present condition of shipping is abnormal and will change as trade revives and surplus tonnage is worked off. We have seen bad times and worse before, and will see them again I suppose, but we have also seen good times and will see them too again, and before very long I think. I suppose I shall be twitted with optimism and be told that I have no good grounds for it. Well, in Scotland we say that facts are "chiels that winna ding," so let me give you some facts. This is what I read in the *Investors'*

Review by last mail dated 27th February. "Last week's revenue figures were again good, income aggregating £5,256,137. Reckoning from Monday last there are thirty-three working days of the fiscal year remaining, and if the revenue for that period were to come at the same daily average as last week's receipts gave, March 31st would see the Chancellor of the Exchequer possessed of some £2,000,000 more than the estimate of last April. Our trade was not carried on unprofitably. The reports of the Commissioners of Inland Revenue showed how vast was the amount and how rapid the growth of the public wealth." So much for general trade, as for shipping the Chairman of the London and India Docks Company at their half yearly meeting stated that "what was satisfactory was that while in London, in their own docks they had had an increase in shipping tonnage of 51,000 tons last year, Hamburg had had a decrease of 364,000 tons, Antwerp a decrease of 127,000 tons, and Rotterdam a decrease of not very much short of 1,200,000 tons. Surely in face of these facts one has the right to be optimistic and to refuse to believe that our trade is leaving us. As for our own particular line we lost the benefit of the cattle trade with Manila for some time last year owing to quarantine restrictions, but that we do not expect to occur again, and we also hope to reap some good from the sugar crop, which is a very large one this year in the Philippines. As you will have seen from the newspapers we have had much trouble on board the steamers with opium smuggling into Manila. We have taken every precaution that a long experience can suggest to us to stop this practice, but from the ease with which the stuff can be hidden owing to its small bulk the result of the most rigorous search cannot be depended upon to absolutely ensure that there is none of it concealed on board. The opium question is no doubt a difficult one out here, but it has not been made simpler by the language of exaggeration, not to give it a shorter and less polite description, which has been indulged in by many at home who should know better. Charity it is said should begin at home, but one cannot help wondering if those good people whose minds are so exercised about the morals of the Chinese ever realize the condition to which a much greater number of their own people have been brought by similar indulgence in alcoholic liquors. They are so anxious about the opium mote in the Chinese eye that they ignore the alcoholic beam in their own and yet the word their Master used for such inconsistent professors was I think "Hypocrite." Be that as it may the unfortunate steamers have to suffer, while the time of their officers is taken up searching for a drug which will only be replaced, if it ever be displaced, by some other form of it in patent medicines or by alcohol which latter will certainly be no improvement on opium. As for the accounts they are simple and clear, and I do not think they require any comment, but I may say that the amount due for outstanding freights has almost all been since collected. Before I move the adoption of the report and accounts I shall be happy to answer any questions from shareholders.

There were no questions and the Chairman moved the adoption of the report. The motion was seconded by Mr. White and carried unanimously.

The re-election of Messrs. H. P. White, A. V. Apcar, and Dr. J. W. Noble as directors was moved by the Chairman, seconded by Mr. Cordeiro, and carried.

Messrs. W. H. Potts and A. O'D. Gourdin were re-elected auditors on the motion of Mr. Klinck, seconded by Mr. Gordon.

The Chairman: That is all the business, gentlemen. I am much obliged to you for your attendance.

SHANGHAI GAS COMPANY, LIMITED.—The Report and Statement of Accounts for 1908, now presented by the Directors, testify to the continued prosperity of the Company.

The higher cost of carbonizing material, increased expenses and the loss which, for the first time, was incurred in the Company's Fitting business, were fully counterbalanced by the increased sales of Gas, and the Working Account for the year shows a profit of Tls. 241,193.13, or practically the same as that for 1907.

The net profit for the year, however, amounted to Tls. 219,162.58, a decrease of Tls. 29,788.92, as compared with 1907. The result was almost entirely occasioned by the interest incurred on cost of the recent extensive additions to the Company's Plant, and it is evident that until such New Plant is working to its full capacity, the Company cannot expect to reap all the profits to be derived therefrom.

The Directors have considered it advisable to write down considerably the stocks of material held in certain departments, and to enable them to do this they have appropriated from Renewals and Depreciation Account the sum of Tls. 30,000.00.

The balance at credit of Profit and Loss Account, after crediting the account with Tls. 6,603.65, carried forward after appropriation of the profit for 1907, with the Tls. 30,000 above alluded to, and deducting the amount of Interim dividend at the rate of 7 per cent. (Tls. 84,000) paid on 27th July last, amounts to Tls. 171,766.23, of which sum the Directors recommend appropriation as follows:—

		Taels.
To pay a final dividend for the year 1908 on 24,000 shares at 6 per cent. (Making 13 per cent. for the year) Tls. 3.00 per share....		72,000.00
To write off for depreciation of Land and Buildings............	894.13	
To write off for depreciation of Manufacturing and Distributing Plant................	94,246.42	
To write off for depreciation of Furniture...	319.24	
		95,459.79
To carry forward to new account.............		4,306.44

Consumption.—Private consumption increased 25,999,900 c. ft. or 5.77 per cent. The increase in Gas used for Public Lighting has been 658,238 c. ft. or 4.17 per cent.

Gas Engines.—The number of Gas Engines in use is 113, and the increase in Gas used for power amounted to 3,127,400 or 6.21 per cent.

Coal, Etc.—Tons 2829.1.0. more carbonizing material were used than in 1907 and 36,387,900 cubic feet more gas were produced.

Residuals.—The Market for the Company's residual has been satisfactory and, apart from coke, of which a largely increased quantity has been used for manufacturing purposes, there has been considerable increase in profit in all products.

Finance.—Early in the year the Directors decided to provide the funds necessary for the payment of balance of cost of the New Plant, by the issue of further Loan Capital in preference to increasing the Share Capital. To enable this to be done it was necessary to consolidate the whole of the Debenture Issues of the Company, and steps to effect this were taken. It was decided to create a new issue of 6% Debentures of not more than Tls. 1,250,000, of which, in the meantime, Tls. 400,000 should be applied to the redemption of existing issues, and a further amount, not exceeding Tls. 400,000 should be issued as required. Practically all the holders of existing debentures have agreed to accept the new debentures in place of those now held by them, and of the residue a considerable portion has already been placed.

Directorate.—Mr. P. F. Lavers returned to Shanghai in May last, and resumed his seat on the Board, Mr. E. E. Clark having resigned on leaving for England. Mr. Lavers has since resigned owing to his absence from Shanghai, and the Board invited Mr. A. Hide to fill the vacancy. Mr. Hide's appointment requires confirmation at the Ordinary General Meeting. In accordance with the Articles of Association, Mr. J. M. Young retires, but being eligible offers himself for re-election.

Audit.—Mr. H. W. G. Hayter was appointed by the Directors to fill the place of Mr. W. H. Anderson who left Shanghai. Mr. Hayter and Mr. J. E. Bingham offer themselves for election as Auditors.

The annual general meeting of the above Company was held at 10 Peking Road, March 26. There were present: Messrs. E. Jenner Hogg (chairman), J. M. Young, F. Ayscough, A. Hide (Directors), George R. Wingrove (secretary), H. King Hiller (Engineer), F. W. Potter, J. Ambrose, R. E. Wilson, D. A. Darling, E. H. Dunning, A. Hunt, L. Kerr, K. O. Mackenzie, A. Fleet, T. Pemberton, J. Valentine, and J. N. Jameson, representing in all 3,393 shares.

The Chairman proposed that Mr. G. R. Wingrove should act as secretary to the meeting, and asked him to read the notice convening the meeting.

This was done.

The chairman:—Gentlemen, Although we have to approach you this year with a reduced dividend, there is no cause of complaint as to the prosperity of the company. The business has shown a steady increase notwithstanding a very active and keen competition, and in view of the general tendency to economize, owing to the continued depression in trade, as is shown by the fact that, although the number of consumers has largely increased, the average consumption per meter has appreciably fallen off.

With regard to the loss on fittings account, which for the first time appears in our accounts, your Directors have, in order to meet the competition offered by Chinese and others, in selling inferior fittings and mantles at abnormally low prices, endeavored to meet the requirements of our customers at equally low rates, and at the same time supply them with first-class articles. We have also done a large amount of work in the maintenance of our customers' fittings, etc., absolutely free of charge. That the net results of the year are not so good as those of 1907, is to be attributed chiefly to the fact that the plant, which was bearing interest during construction in 1907, and which of course takes time before earning its full return, was all completed early in the year, and such interest for 1908 fell on the ordinary revenue of the Company. Profit on local exchange fell off too, and we have also had considerable legal expenses in connexion with the long-drawn-out arbitration case with the Municipal Council. That the progress of our Company has been highly satisfactory is shown by the fact that there is an increase in our gas sales of 5.85 per cent. Of residuals, tar, pitch and sulphate of ammonia, all show an increase. Coke shows a decrease, but there is a set off against this in the increased quantity used for manufacture.

Our total receipts in working account have been Tls. 666,719.22 against Tls. 643,911.01, and, passing to the other side of the account, our total expenditure has been Tls. 425,526.09 against Tls. 402,343.95. Our carbonizing material has cost us only about 4 per cent more, which, considering the increased price of coal and petroleum, is very satisfactory and testifies to the economy in working that has been achieved. Purifying has again cost less. I need not trouble you with all details involved in the cost of our manufacture and maintenance, but can inform you that such increases as there are, are fully justified in view of the extending business and the upkeep of the Company's plant in first-rate condition. One or two items may be mentioned. Public lamps required an increased expenditure of Tls. 1,328.38 while rates and taxes amounted to Tls. 6,720.38 (besides the special discount on Public Lighting amounting to Tls. 5,925.81), no mean contribution to the Municipal funds.

Profit and Loss you will find shows a net profit of Tls. 219,165.58, after providing for interest on our debentures, Bank overdraft, etc., and other charges applicable to this account.

There is one item in the account which perhaps calls for some short explanation. I allude to the appropriation of the sum of Tls. 30,000 from renewals and depreciation account. Your Directors have, in order to meet competition better, thought it expedient to write a larger amount than usual off certain stocks, with a view to being in a position to supply customers at as nearly cost price as possible. The renewals and depreciation account has been, as you know, built up out of surplus profits of past years to meet any such contingency, and the transfer of the sum named to Profit and Loss account is merely a convenient channel through

which to effect the appropriation of the sum to various accounts, and not because we have incurred any specific loss in any one direction.

Turning to the Balance Sheet—Land has only to bear a small amount for filling in, the cost of additional buildings being about Tls. 7,800. On manufacturing plant, the expenditure amounts to Tls. 289,705.61 of which the cost of the new gasholder is the principal item. This expenditure was not, however, incurred during the year, but the bulk of it appeared in last year's balance sheet, under the heading of "plant and buildings in construction." On distributing plant there has been expended a considerable sum to provide for the requirements of consumers. The remaining items on this side of the account speak for themselves. With regard to capital and finance, the balance of the last share issue (Tls. 2,300) was taken up early in the year, bringing the paid-up capital to Tls. 1,200,000. To provide the necessary funds for payment of the balance of cost of extensions, the directors decided on June 18 last to issue further debentures in preference to increasing the share capital, and in order to avoid the creation of a third mortgage, it was decided to pay off existing loans as early as possible and to authorize an issue, as a first charge on the Company's undertaking, to the extent of Tls. 1,250,000, of which Tls. 400,000 should be offered to holders of existing debentures in exchange for those held by them, and a further Tls. 400,000 should be issued as required. At the end of the year, practically all the holders of existing debentures had signified their willingness to accept the new debentures, and a further quantity realized Tls. 24,580.03, which amount appears to the credit of "debenture issue—suspense account." Further debentures are being taken satisfactorily, and there will be no difficulty in placing what may be required. As to the future, we feel confident that we shall obtain an ample share of lighting business. There are no extensions of manufacturing plant contemplated this year and only the normal amount of new work in the distribution department to keep pace with the increasing demand for gas, which with returning prosperity it is hoped will continue to show large development.

It is due to you that I say a few words concerning the Arbitration case with the Municipal Council. In order that the facts might be clearly before you, we have had printed and circulated to shareholders, the full report of what has taken place from the beginning, and including the two decisions of the Court of Consuls, ordering the arbitration we sought for, and finally the decision of Mr. F. S. A. Bourne in the Arbitration itself, which resulted in our favor. In spite of this, I am bound to say that our troubles with the Council are not yet over. As the Chairman of the Council remarked, at the Ratepayers' Meeting on the 17th instant "the amount at stake is not large, but the principle involved is far reaching"—and, though he did not say so, it must be presumed that he recognized that, in all fairness, we are bound to see that a far-reaching principle is guarded and settled in a manner equitable to the Gas Company's shareholders. (Hear! Hear!) We certainly approached the Council in a conciliatory spirit, which, I am sorry to say, has not been reciprocated. It was eminently a question that should have been settled in the very beginning, and if the Council had not hastily granted the permit to the Tramway Company (a point on which stress is laid by the Arbitrator), but had waited until the matter had been arranged, all subsequent troubles would have been avoided. The Arbitrator says:—"I find the issue of a permit to the Tramway Company to have been a wilful act and unnecessary in the public interest."

In 1905, when requested by the Council to concede a discount of 25 per cent on Public Lighting, there was no lack of conciliatory spirit on our part. This is what our Secretary wrote on June 9, 1905.

"Dealing with the Council's proposal as an earnest of future equality of treatment in regard to lighting, and desiring to give practical proof of their wish to meet the Council in a liberal spirit; my Directors are prepared to submit to additional taxation to the extent asked for." We did not demur, but did what was asked for at once. Gentlemen, have we received, and are we receiving the equality of treatment which was then stipulated for and which was so important a consideration in our negotiations? Have we received the consideration due to us in regard to this dispute and are we receiving equality of treatment in other ways? I think not! It should be recognized that we represent over Tls. 2,000,000 of share and loan capital in which the community has embarked its money, and we contributed last year in rates, taxes, and the special discount on public lighting, no less a sum than Tls. 12,646.19 to the public funds—surely a position that entitles us to reasonable consideration. All we ask for is, a fair field and no favor. I do not think I need add anything more, beyond asking you to read the record of our action as shown in the pamphlet and claiming your support for what we have bone. (Applause.)

I ought before closing my remarks to testify to the excellent work of our staff. All, from highest to lowest, have worked hard and zealously in the interests of the company, and I am sure you will join the Board in tendering them our hearty thanks (Applause). I venture to think that a bonus of 5 per cent to the staff would meet with the approval of the shareholders, and if proposed the resolution will be cordially adopted by the Board. Gentlemen, that is all I have to say, but I shall be glad to answer any questions to the best of my ability.

There being no questions, the following resolutions were put to the meeting and adopted unanimously:

Proposed by the Chairman, seconded by Mr. J. M. Young: that the report and accounts as presented be accepted and passed.

Proposed by the Chairman, seconded by Mr. F. Ayscough: that a final dividend for the year ended December 31, 1908, be paid to the shareholders at the rate of three taels (Tls. 3) per share.

Proposed by the Chairman, seconded by Mr. A. Hide: that the balance at credit of profit and loss account remaining after payment of the dividend declared at this meeting be appropriated as recommended by the Directors in their report for the year 1908.

Proposed by Mr. J. Valentine, seconded by Mr. L. Kerr: that the appointment of Mr. A. Hide as a Director of this company be confirmed.

Proposed by Mr. T. Pemberton, seconded by Mr. J. Ambrose: that Mr. J. M. Young be re-elected as a Director of this company.

Proposed by Mr. E. H. Dunning, seconded by Mr. R. E. Wilson: that Messrs. H. W. G. Hayter and J. E. Bingham be elected as auditors of this company.

Proposed by Mr. A. Fleet, seconded by Mr. J. Ambrose: that a sum not exceeding five per cent. of the annual salaries of the members of the foreign staff of the company be placed at the disposal of the Directors for distribution by them, at their discretion, to the members of the staff.

Mr. Wingrove—I should like, on behalf of the members of the foreign staff to thank you for your appreciation of their work, and for marking your appreciation in this substantial manner.

The meeting then terminated.

Shanghai Waterworks Co., Ltd.—The annual meeting of shareholders in the Shanghai Waterworks Company, Ltd., was held at the office of the Company, No. 69, Kiangse Road, March 24th, when Mr. A. McLeod presided. There were also present Messrs. L. J. Cubitt, W. D. Little, and A. Hide (Directors), J. M. Young, F. B. Pitcairn, D. Forbes, J. N. Jameson, W. A. C. Platt, and A. P. Wood, secretary and engineer-in-chief. The number of shares represented was 9,028.

The notice convening the meeting having been read:

The Chairman said:—Gentlemen—The Report and Accounts for the year, ending December 31, 1908, having been in your possession for some days you will doubtless agree that they be taken as read. In placing before you the accounts and balance sheet for the past year, which the Directors trust you will consider satisfactory, they are pleased to draw attention to the continued progressive nature of the Company's business, which is expanding as the Settlements increase in population and in the various industrial enterprises which are coming into existence in Shanghai. You will observe from a glance at our Working Account that our Revenue for the year amounts to Tls. 510,321.77 which I think I am correct in saying is a record since the Company was first started and is Tls. 51,826.78 more than in 1907. With this increase in our revenue it is satisfactory to note there has been a considerable saving on several items of expenditure and the final result of the year's operations is the transfer from Working Account to the credit of Profit and Loss Account of Tls. 353,255.95 as against Tls. 304,015.25 in 1907. Taking now our Balance Sheet you will notice on the liability side our capital is paid up in full and amounts to £327,000 or 16,350 shares of £20 each: our debenture issue is also completed and stands at Tls. 750,000 as against Tls. 573,500, in last account. The mortgage on B. C. Lot 1265 which stood at Tls. 100,000, in last year's report has been reduced by half and now figures at Tls. 50,000; and it is the intention of the Directors to pay off this amount as soon as the terms of the mortgage permit us to do so. On the assets side of the Balance Sheet you will find that on the extension of works, mains, etc., we have expended Tls. 79,432.25 which is a very much smaller sum than was spent last year when very important additions were made to our works and a considerable purchase of land was made to provide for future extensions. The value of our stock of fittings is reduced by about Tls. 54,000, owing to the fact that some rather extensive work has been undertaken during the past year. You will notice that we had on deposit with the Hongkong & Shanghai Bank, Tls. 180,000, but this will be absorbed by the payment of the final dividend now due. As regards the Profit and Loss Account the balance transferred from the Working Account is Tls. 353,255.95 which, after the payment of the interim dividend of 15*s*, interest on debentures and sundry charges, leaves as available for distribution Tls. 236,589.49 and it is here that we have to deal with the only unsatisfactory feature of our past year's accounts. I refer to the heavy drop that has taken place in sterling Exchange. In 1907 our interim dividend of 15*s* per share on the old shares and 11*s* 3*d* new shares, cost us at Ex. 3- per tael Tls. 71,523.75 and the final dividend 37*s* 6*d* and 30*s* 5*d* on the same shares at exchange 2-6¼ cost Tls. 220,227.93, or a total for the whole year of Tls. 291,751.68. Now I wish to point out how greatly the fall in exchange affects the rate of dividend we have to declare in sterling. Our interim dividend for 1908 of 15*s* @ Ex. 2-5 cost Tls. 101,428.75 and if the final dividend now recommended of 30*s* per share at Ex. 2[3 9-16 for 1908 is passed by you, the cost of same will be Tls. 213,551.01 making the total Tls. 314,979.76 for the year, or Tls. 23,228.08 more than the dividend of 1907, though this latter was 7*s* 6*d* per share above our 1908 dividend. Of course this does not affect shareholders who draw these dividends in Taels, but to the home shareholders, who are paid in sterling, there is a diminution of 7*s* 6*d* per share in this year's dividends and this in spite of our net earnings being larger. You will of course all readily admit this matter of Exchange is one over which the Directors unfortunately have no control.

You will see from the report what the recommendation of the Board is for the appropriation of the amount available for distribution, namely:

To payment of a final dividend of 30*s* per share at Exchange 2[3 9-16....................	Tls. 213,551.01
To carry forward to new account.	Tls. 23,038.48
	Tls. 236,589.49

which is the amount at credit of Profit and Loss Account and we trust this will meet with your approval.

There is one other matter mentioned in the report which it might be as well to refer to, and that is the proposed redemption of the existing debentures of Tls. 750,000 and which consist of 1st and 2nd issues, and to make a new issue of Tls. 1,500,000 in instalments as required, and it is satisfactory to know that nearly all

holders of the present issue desire to transfer their interests to the new debentures. Gentlemen, that is, I think, all there is to be said with regard to the report and accounts, but it may interest you to know that the present year is the 25th anniversary of the opening of the Company's works, as it was on September 1, 1883, that water was first supplied to the public of Shanghai, and I think you will all admit that it is satisfactory to learn that this supply has been continued for 25 years without intermission. It may be of interest to shareholders to record the following figures: the number of foreign houses now supplied with water through fittings is 1905 and native houses 40,869, or a total of 42,774 in addition to which the company supplies very large quantities of water to the Municipal Council, various mills and manufactories, etc., etc., for which purpose 2,516½ million gallons of water had to be pumped during the year or a daily average of 6,875,582 gallons, an increase over the previous year of 245 million gallons, equal to 10.8 per cent. From these figures it is quite certain with the exception of Shipping the general depression of trade in Shanghai so much complained about, has not in anyway curtailed the use of water, or the Company's greatest enemy "The abuse and waste of water." With a view to trace this very large increase of 10.8 per cent or 669,071 gallons daily, our Engineer-in-Chief says: "I can only come to the conclusion that it is due to the general expansion of the company's business, as 3,673 additional houses have been supplied with water through fittings during the year; also a larger quantity of water is now being used both by foreign and Chinese consumers." It is quite certain unless consumers give more assistance to the Company than they do at present to check and prevent waste, the time is not far distant when it will be necessary to appeal to the Council to make our water rate by meter, charging for the quantity of water used. To be in a position to meet this constantly increasing demand for water a contract has just been made through our consulting engineers in London with the Glenfield, Kennedy Co., Ltd., for a new pumping engine capable of pumping 300,000 gallons per hour or 7½ millions in 24 hours. The new Water Tower has been in use during the year with very satisfactory results, and all high buildings can now be supplied with water. The additional filter beds and the other new works mentioned as in progress at the last meeting, have been completed and have proved their usefulness by enabling the largely increased demand for water to be supplied without a stoppage during the year. You will have noticed from the "Municipal Gazette" considerable correspondence has passed between the Municipal Council and the Company with regard to the Company's regulation about the method of water supply to small Chinese houses. The Directors are quite decided that some check must be put on the waste of water caused by placing a tap in each small Chinese house.

You may possibly remember that at our last annual meeting I referred to the retirement through ill-health of Mr. David Reid from the London Committee, and it is with sincere sorrow that the Board have quite recently received news of this gentleman's death. I am confident that the shareholders will concur in recording their great regret at this sad occurrence. We have also, during the past year, lost the services on the London Committee of our old and much esteemed colleagues Mr. E. Iveson and Mr. E. Pettit, who have desired to retire from active participation in the affairs of the Company in London. We all owe these gentlemen a debt of gratitude for their valuable services in the interests of the Company for many years past. We have been fortunate in securing the services of Mr. A Pettit, the son of Mr. E. Pettit, as a member of the London Committee. I will conclude these remarks by again expressing what I have done for many years past, the satisfaction of the Board with the whole of the staff. Before proposing the adoption of the Report and Accounts I shall be pleased to answer any question that you may wish to ask.

There were no questions and the following resolutions were unanimously passed:—

Proposed by the Chairman and seconded by Mr. L. J. Cubitt: That the Report and Accounts for the year ending December 31, 1908, as presented be passed.

Proposed by the Chairman and seconded by Mr. W. D. Little: That a final dividend for the year 1908 of thirty shillings per share be declared and paid at exchange 2s 3d 9-10ths per tael to shareholders in China.

Proposed by Mr. W. A. C. Platt and seconded by Mr. J. N. Jameson: That Mr. L. J. Cubitt be re-elected a Director of the Company.

Proposed by Mr. W. A. C. Platt and seconded by Mr. J. N. Jameson: That Messrs. Lowe, Bingham and Matthews be elected auditors of the Company.

Proposed by Mr. J. M. Young and seconded by Mr. W. A. C. Platt: That a sum not exceeding ten per cent of the annual salaries of the members of the foreign staff of the Company be placed at the disposal of the Directors for distribution by them at their discretion to the members of the staff—In proposing this resolution Mr. Young paid a tribute to the work of the staff, and Mr. Platt, in seconding the motion, said that all the shareholders were very grateful to the employees for the work that they had done for the shareholders during the year.

Mr. A. P. Wood, in thanking the shareholders for passing this resolution, said that it was a pleasure for the staff to work for shareholders who appreciated their work so much. The members of the staff would continue to do their best for the Company.

This concluded the business of the meeting. The Chairman announced that dividend warrants would be posted next day.

HONGKONG AND KOWLOON WHARF AND GODOWN COMPANY, LTD.—The balance to the credit of profit and loss for the year 1908 was $81,055.67, of which $50,000 was written off lighters, $953.11 off stores and the balance carried forward.

CHINA FIRE INSURANCE COMPANY, LTD.—The balance available was $258,725 out of which a dividend of $6 and a bonus of $2 a share were directed paid and $92,570 added to the special reserve fund.

THE UNION INSURANCE SOCIETY OF CANTON, LIMITED.—An interim dividend of $30 a share to shareholders and 20% to contributors was recommended by the directors and the balance carried forward.

HONGKONG FIRE INSURANCE CO., LTD.—A dividend of $27 a share was authorized at the annual meeting absorbing $216,000 and $114,232 carried to the reserve.

CHINA TRADERS INSURANCE COMPANY, LTD.—An interim dividend of $3 a share absorbing $72,000, a bonus of 20% to contributors absorbing $125,000 were recommended by the board of directors of this company for the year 1908.

THE BRITISH NORTH BORNEO CO.—The directors of the British North Borneo Company announce an issue at par of 649,259 shares of £1 each, leaving for future issue £400,000 of the £2,000,000 capital authorized by the company's deed of settlement. It is explained that the objects in making this issue are: (1) to provide more capital for the further development of the company's territory; (2) to redeem the £461,600 outstanding five per cent. debentures and bonds, interest on which (after redemption) will be available for dividend purposes. From £14,196 in 1901 the surplus of revenue over expenditure has risen to £52,909 in 1907, and the dividend from 2 to 4 per cent., whilst the sum standing to the credit of profit and loss account in the last balance sheet, was £134,201. The prospectus points out that the company has, among other assets, sovereign rights under which it is empowered to frame and enforce laws, to fix customs and other tariffs, and to levy taxes for revenue purposes within the State of North Borneo, territorial rights over the whole of the state, the area of which is estimated at some 31,000 square miles, and a large portion of which is suitable for the cultivation of rubber and high class tobacco. The assets valued in the books at £1,451,000—include the marketable timber fifty million tons, while the company owns a fully equipped metre-gauge railway 125 miles in length, and about 800 miles of telegraph and telephone lines.

CHINA-BORNEO COMPANY, LTD.—A dividend of 10% absorbing $55,200 was authorized paid at the annual meeting of this company covering the year 1908 besides writing off $10,000 depreciation Hongkong Mills, $5,000 off lighters, $2,500 off plant, $1,145.09 off timber concessions and $1,000 off Kadat pier and house property and carrying $15,000 to the Reserve. The sum of $3,000 was also distributed among the members of the company's staff.

LUZON SUGAR REFINING CO., LTD.—The gain on working for the year 1908 was $12,719.42 and the debit to profit and loss $135,893.43.

CHINA SUGAR REFINING COMPANY, LTD.—The sum at the debit of profit and loss account was reduced from $279,371.67 to $5,858.24 during the year 1908 and a dividend of $5 a share was authorized paid out of the equalization of dividend fund.

GEO. FENWICK & COMPANY, LTD.—The accounts at the end of the year 1908 showed a debit balance of $7,421.92.

HONGKONG HOTEL COMPANY, LTD.—Out of the balance to the credit of profit and loss at the end of the half year of $42,461.49 a dividend of 6% was directed paid absorbing $36,000; $10,000 passed to the repairs and renewals account; off furniture and electric plant $8,000 and carried forward the balance of $295.40.

UNION WATERBOAT COMPANY, LTD.—This company paid a dividend of 6% after writing off $13,165 and carried forward $172.51.

SHANGHAI TUG & LIGHTER CO., LTD.—Out of Taels 71,855.99 to the credit of profit and loss at the end of the year 1908 a final dividend of 3.5% making 7% for the year was authorized paid; Taels 15,000 transferred to reserve and Taels 4,355.99 carried forward.

KOCHIEN TRANSPORTATION AND TOW BOAT COMPANY, LTD.—A dividend of 6% was authorized for the year 1908 and $468.86 carried forward after allowing Taels 13,555 for depreciation and transferring Taels 5,000 to the Marine Insurance Fund.

THE YANG-TSZE INSURANCE ASSOCIATION, LTD.—Out of a credit balance available of $743,637.03 a dividend of 5% was authorized absorbing $36,000 and the balance forward was $707,637.

CHINA MUTUAL STEAM NAVIGATION COMPANY, LTD.—Out of £119,312 available for distribution at the end of the year 1908, £67,870 was written off for depreciation, etc., a 5% dividend was recommended and the balance of £14,262 forward.

CENTRAL STORES, LTD.—A dividend of $1.20 on old and 60 cents on new shares were authorized at the last general meeting.

SHANGHAI AND HONGKEW WHARF CO., LTD.—This company paid a dividend of Tls. 6 a share for the year absorbing Tls. 216,000.

ANGLO-GERMAN BREWERY COMPANY, LTD.—The accounts at the end of the year 1908 showed a balance to the credit of profit and loss of $22,388.60 out of which $21,000 were written off for depreciation and the balance carried forward.

YOKOHAMA SPECIE BANK.—After paying a dividend of 12% per annum for the half year ended December 31st, 1908, yen 400,000 were added to reserve and yen 1,140,000 carried forward.

CHARTERED BANK OF INDIA, AUSTRALIA AND CHINA.—The directors recommended the payment of dividend at the rate of 15% per annum for the half year ended December 31st, 1908; to write off £25,000 on bank premises;

to place £50,000 in the reserve which now stands at £1,575,000 and to carry forward £134,000 besides paying a bonus of 10% to the staff.

HELM BROS., LTD.—A final dividend of 10% making 17.5% for the year absorbed yen 24,995.55 and a balance of yen 6,395.55 was carried forward.

IMPERIAL HOTEL, LTD. (TIENTSIN).—This company paid a dividend of 8% and carried forward Tls. 1,290.

PEKING ELECTRIC COMPANY, LTD.—Out of Tls. 13,781.08 available for distribution a dividend of 2% was declared and after writing off installation and paying auditors' fees a balance of Tls. 1,613.07 was carried forward.

ROYAL JOHORE TIN MINING COMPANY, LTD.—A dividend of 3% was declared and $579.23 carried forward.

SIPIAU TIN COMPANY, LTD.—A dividend of 3% was declared and $777.68 carried forward for the half year ended December 31st, 1908.

KARANGAN HYDRAULIC TIN MINING COMPANY, LTD.—The profit for the half year ended December 31st amounted to $2,400 which sum was carried forward.

MERCANTILE BANK OF INDIA.—A dividend of 6% per annum has been recommended together with an addition to the reserve fund of £24,000, an addition of £2,000 to the officers' pension fund and balance forward £25,300.

SERENDAH TIN MINING COMPANY, LTD.—A final dividend of 2.5% making 10% for the year was paid and a balance of $5,418.54 carried forward.

FRASER & NEAVE, LTD.—The directors recommended the following disposition of the sum of $84,105.33 available for distribution:

(a) That a dividend of 15 per cent. and a bonus of 2½ per cent. or, together, 17½ per cent. on the capital of the Company, or $8.75 per share, be paid, absorbing $39,375.

(b) That a sum of $17,500 be added to General Reserve bringing same up to $150,000.

(c) That the balance of $27,230.33 be carried forward to a new Profit and Loss Account.

BALGOWNIE RUBBER ESTATES, LTD.—This company declared an interim dividend of $1.25 payable March 15.

THE PAKNAM RAILWAY COMPANY, LTD.—The net profit for the year amounted to Ticals 56,650.35 out of which a dividend of 8% was declared and Ticals 24,350.35 carried forward.

BANGKOK MANUFACTURING CO., LTD.—A dividend of 5% was declared for the half year ended December 31st, Ticals 10,000 added to the reserve, and Ticals 5,376 forward.

SIAM STEAM PACKET COMPANY, LTD.—The following disposition was made of the profits for the year ended December 31st, 1908:

	Ticals
Transfer to Dividend Account 8%...	10,500.00
Transfer to Dividend Account New Issue...........................	1,546.66
Transfer Goodwill Account.........	2,400.00
Remuneration to Directors.........	2,500.00
Carried forward to 1909............	608.99
	17,555.65

MENAM MOTOR BOAT CO., LTD.—After allowing Ticals 20,000 for depreciation the balance to the credit of profit and loss of Ticals 3,653.71 was carried forward.

BANGKOK DOCK COMPANY, LTD.—The following distribution of profit was recommended by the directors:

	Ticals
Transfer to Dividend Account 5%...	40,000.00
Transfer to Dividend Account New Issue...........................	500.00
Remuneration to Directors.........	6,800.00
Carry forward to 1909.............	8,872.58
	56,172.58

CONTRACTING NEWS

*CITY OF MANILA.—Bids will be received to July 1st for the furnishing of approximately 160 gate valves, 20 air valves, and 325 fire hydrants by the Secretary of the Municipal Board, Manila.

*CITY OF MANILA.—Bids will be received to June 1st for the furnishing of 7,000 tons of cast iron pipe hub and spigot pattern; about 56 tons of 20-inch flexible joint and flanged cast iron pipe; two tons flanged cast iron pipe and about 200 tons of cast iron specials, by the Secretary of the Municipal Board, Manila, or address Chief of Bureau Insular Affairs, Washington.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Tenders invited, to be opened June 21st, 1909, by the Managing Director at Nanking, China, for the furnishing free of all charge at the wharf at Pukow, not later than December 31st, 1909, Steel Plate Girders as follows:

26 Spans of Deck Girders, 12 feet clear span; 12 Spans of Deck Girders, 20 feet clear span; 60 Spans of Deck Girders, 30 feet clear span; 12 Spans of Deck Girders, 50 feet clear span; 2 Spans of Through Girders, 50 feet clear span; 3 Spans of Deck Girders, 75 feet clear span; 3 Spans of Through Girders, 75 feet clear span.

Quotations in sterling and bids must be presented on or before June 20, 1909.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Steel plate girders to be delivered on wharf at Pukow during the month of May, 1910. Quotations in sterling and received by Managing Director at Nanking not later than June 20th, 1909:

12 Spans of Deck Girders, 12 feet clear span; 8 Spans of Deck Girders, 20 feet clear span; 150 Spans of Deck Girders, 30 feet clear span; 30 Spans of Deck Girders, 50 feet clear span; 8 Spans of Deck Girders, 75 feet clear span.

IMPERIAL-TIENTSIN-PUKOW RAILWAY.—Rolling Stock for Southern Section. To be delivered at wharf, Pukow, in January, 1910. Tenders addressed Managing Director, Nanking, to be opened June 25, 1909.

For 100 High Sided Wagons (30 tons); 100 Low Sided Wagons (30 tons); 50 Covered Goods Wagons (20 tons).

Also eight tender locomotives 2-6-0 type, cylinders 19″×24″. Coupled Wheel 5′-0″ diameter. Working pressure 180 lbs. With six wheel-tenders.

The locomotives and tenders to be delivered on the railway wharf at Pukow; four locomotives to be delivered during the month of April 1910, and the remaining four during the month of August 1910.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking. They will be opened at 10 a.m. on Tuesday, the 29th June, 1909.

CHIEF QUARTERMASTER, U. S. ARMY.—100,000 pounds of rope. Bids opened April 30th, 1909.

*CHIEF QUARTERMASTER, U. S. ARMY.—One sea-going single-screw tug-boat. Bids opened June 1st, 1909. Address, Philippines Division, Office Chief Quartermaster, Manila, P. I.

PHILIPPINE GOVERNMENT.—40,000 barrels cement; bids opened May 8th, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

PHILIPPINE GOVERNMENT.—40,000 *metric* tons of coal; bids opened May 17, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

BIDS OPENED.—March 20, 1909, Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Lumber to be delivered at Pukow, not later than August 31, 1909. One ship load of Douglas Fir, not exceeding 3,000,000 feet rough and worked with 250,000 laths.

March 19, 1909.—Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Sleepers, crossing timbers and bridge ties as follows:

100,000 Wooden Sleepers, each 8 feet by 9 inches by 5 inches; 800 Crossing Timbers, each 9 feet by 9 inches by 5 inches; 300 Crossing Timber, each 10 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 11 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 12 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 13 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 14 feet by 9 inches by 5 inches; 200 Crossing Timbers, each 17 feet by 9 inches by 5 inches; 3,000 Bridge Ties, each 10 feet by 9 inches by 5 inches.

**Advertised in the* FAR EASTERN REVIEW.

TO CONTRACTORS

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—SEALED PROPOSALS or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

ADVERTISEMENT

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sitxty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. P. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

PROPOSALS FOR FURNISHING TOWBOAT.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 15th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing and delivering to the Quartermaster's Department, U. S. Army, Manila, P. I., one seagoing, single screw, towboat, will be received here until 10:00 a. m., June 1st, 1909, and then opened. Certified check in ten per cent (10%) of amount of bid must accompany proposals. Blank forms and full information furnished upon application to this office. Envelopes containing proposals should be endorsed "Proposals for furnishing towboat, to be opened at 10:00 A. M., June 1st, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PHILIPPINE LEAF TOBACCO TO AUSTRALIA

The Walter E. Olsen & Co., Inc., made a shipment of 83,688 pounds of leaf tobacco to the order of the States Tobacco Company of Melbourne and Sydney together with 500,000 José Rizal and Fighting Bob cigars this month and there is promise of marked extension of trade in this direction.

MINING MACHINERY FOR THE SAN MAURICIO

The complete equipment for the installation of a 20 stamp mill in the San Mauricio mine, Camarines, arrived at Manila and will be shipped south this month. The shipment comprised 353 packages, in all about 130 tons, and is the largest shipment of mining machinery ever brought to the Philippines. It includes a complete mill of 20 stamps, concentrators, pacifiers, an electric light plant complete and power machinery. President Heise states that the installation will be complete and the plant operating by the end of 1909.

PHILIPPINE GOLD OUTPUT

The Paracale Gold Dredging Company report the saving of 644 ounces during the month of March.

The Benguet Consolidated Mining Co. reports a saving of 235 ounces during the month of March.

STRAITS SETTLEMENTS TRADE

The following is a comparative statement of the Straits Settlements imports and exports for 1907 and 1908:

	1908	1907.
Singapore..........	$45,137,294	$45,483,886
Penang............	$21,980,145	19,700,804
Malacca............	1,050,469	918,256
Total........	$68,167,908	$66,102,946
Total in Sterling....	£7,952,924	£7,712,010

Increase in Dollars—$2,064,962.
Increase in Sterling—£240,914.

The imports of merchandise into the three Settlements during the last quarter of the respective years were as follows:

	1908	1907.
Singapore..........	$52,868,783	$57,360,470
Penang............	24,220,413	20,584,505
Malacca............	1,085,252	1,228,365
Total........	$78,174,448	$78,173,340
Total in Sterling....	£9,120,351	£9,120,223

Increase in Dollars—1,108.
Increase in Sterling—£128.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS.

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

KIRIN ELECTRIC LIGHT PLANT.—This company has been serving light to customers for some time, and it is expected that the whole system will be in operation in a few months.

WIRELESS ON AMERICAN RAILWAYS.—A telegraphic report from New York announces that wireless telegraphy has been successfully utilized on a train running between Buffalo and Chicago.

U. S. TRANSPORT WIRELESS.—The transport *Sheridan* reports having received messages covering a distance of 3,000 miles and on her last voyage to Nagasaki kept in touch all the distance. All the transports are being equipped.

ELECTRIC CRANES FOR AUKLAND.—The contract for supplying cranes to the harbor board has been let to Messrs. John Chambers & Sons, Ltd., Aukland, agents for Messrs. Babcock & Wilcox of London and Glasgow. The price was £16,421. f. o. b. at an English port.

CHINESE TELEGRAPH WIRE FACTORY.—It has been announced that Peking is negotiating with an American wire manufacturer for the establishment of a wire factory at some point in China, the capital to be supplied jointly by the government and the American capitalist.

PORT ARTHUR ELECTRIC RAILWAY.—The proposed tramway to connect Old and New Town, Port Arthur, is again being discussed and it is said that the promoters have secured the necessary capital to buy the equipment and lay the track. It is proposed that the power be secured from the electric light plant there.

HAWTHORN ELECTRIC LIGHTING.—The report on the cost of lighting the town estimates the cost at £94,050, says *Hardware and Machine*, and an alternate proposal to secure current from the Melbourne plant is being considered. The output of the Melbourne plant grew from 3,500,000 units in 1902 to 7,500,000 in 1908.

ELECTRIC LIGHT FOR SANDAKAN.—The British Trading Company of London has secured a concession to install a system of electric lighting in the city, and the contract with the British North Borneo Government requires that the plant begin operating within 24 months from December 8th, 1908. The charge will be 30 cents per unit to the consumer.

WIRELESS FOR CHINA.—The difficulty of establishing communication by telegraph across the deserts that intervene between Peking and the extreme North-west of the empire is to be surmounted by the installation of an extensive wireless system under the control of the Chinese government. The Board of Posts and Communications are now making investigations as to the best systems to adopt.

JAPANESE-AMERICAN ELECTRIC APPARATUS MANUFACTURING COMPANY.—More information published in the Japanese press discloses the fact that the Shibaura Works managed by the Mitsui Company and the Tokyo Electric Company will be amalgamated and with the General Electric will form a company with four million capital controlled by the American capitalists. The General Electric owns a large tract of land at Kawasaki, and it is said that a large factory will be established there.

RAILWAYS AND RAILWAY SUPPLIES

THE KASHING RAILWAY.—The work on this railway is progressing favorably and trains are running into Kashing.

NANKING-WUHU LINE.—Viceroy Tuan Fang has completed arrangements to construct a line connecting these two points in Kiangsu.

RAILWAY WORKSHOPS AT SHAHOKOU.—The site of the South Manchuria shops has been chosen and materials are now on the ground.

YUNNAN RAILWAY CONSTRUCTION. The construction on this line has reached Mongtze, a distance in all of 500 miles from Haiphong.

IPOH RAILWAY STATION.—A new railway station is to be constructed and a branch line running from Ipoh to Gopeng is being considered.

ANTUNG-MUKDEN RAILWAY.—The final survey of this line with a view to shortening the line and increase it to standard gauge is now under way.

CANTON-HANKOW CONSTRUCTION.—This work has reached North River and the line is being operated beyond Yuntam about fifty miles from Canton.

PINGSHIANG RAILWAY EXTENSION.—The extension of the Canton-Hankow to the mines will be built by the Canton-Hankow and not as planned by the mines.

CHINESE EASTERN RAILWAY.—It is reported that the Russians are carrying on negotiations at Peking for the sale of their rights in this railway, to the Chinese government.

TSINANFU-LOKOW LINE.—This temporary line on the Hoangho between these two points will be completed this month and will be operated until the completion of the Tientsin-Pukow.

NEW CHINESE RAILWAY COLLEGE.—The Viceroy of Chihli has recommended the establishment of a railway college at Tientsin. It will have a three year course with classes in German, French, and Russian.

GEMAS-PAHANG EXTENSION.—The construction of the line from Gemas junction to Kuala Semantan in Pahang is being pushed rapidly. Eighteen miles of steel have been laid and the ballasting is well under way.

NEW SHENSHI RAILWAYS.—The officials of Shensi are urging the building of a railway from Hsian to Tungkwan, another from Hsian to Langchow, besides the extension from Tungkwan to open up the coal and oil districts.

F. M. S. RAILWAY APPRENTICES.—This railway system has inaugurated a plan whereby apprentices are taken on without pay until trained and there is a vacancy in the regular paid force. The result has been ten applications for every opening.

YENTAI BRANCH LINE.—This line, which runs from the mines to the station at Yentai, is being widened to standard gauge and the work is expected completed in August. It is also the intention to widen all the sidings connected with the line as quickly as possible.

NORTHERN AND WESTERN CHINESE RAILWAYS.—The construction of a line from Kalgan to Kulun and another from Kalgan to Suiyuen projected some time ago, is being considered at Peking at the present time and it is very probable that means will be realized to finance the proposition.

ANGLO-SIAMESE RAILWAY.—According to the terms of the treaty providing for the withdrawal of Siam from the suzerainty of Kelantan, Tringanu and Kedah, the Federated Malay States have agreed to provide the sum of £4,000,000 to go towards financing the construction of a railway from Bangkok to the new Malayan boundary.

YALU RAILWAY BRIDGE.—With the going out of the ice in the spring the construction of the big railway bridge will begin. This construction will be the most important in connection with Korean and Japanese railways. When completed it will inaugurate through traffic from Fusan to Mukden. It will be 3,182 feet long and cost $4,000,000.

SZECHUEN-TIBET RAILWAY.—British capitalists are interested in a proposal to construct this line starting from Tibet and providing for connections with the Indian system. So far Peking has not considered the proposition with much favor. It is the purpose of the Chinese to begin construction as soon as the Hankow-Szechuen line reaches the latter point.

CHINESE RAILWAY RETURNS.—From the different reports submitted it is gathered that during the year 1908 the Peking-Fengtien Railway made a profit of Tls. 3,300,000, the Peking-Hankow Tls. 3,000,000 and the Ping-hsiang-Liling Tls. 100,000 and that the Taokow-Tsinghwa, Chengting-Taiyuen and Shanghai-Nanking Railway, lost Tls. 300,000, Tls. 600,000 and Tls. 900,000 respectively.

CHEFOO-WEIH-HSIEN RAILWAY.—The latest advices have the route of this line along the coast line to Tungchow, says the *Peking & Tientsin Times.*

"The first section will be from Chefoo to Fushan; the second, from Fushan to Hsintien; the third, from Hsintien to Wushilipu; the fourth and remaining section, from Wushilipu to Tungchow. From Tungchow, the line will extend in a South Easterly direction as far as Huanghsien. The line will run from Huanghsien to the terminus Weihhsien, via Laichowfu and Chungyi."

JAPANESE PRIVATE RAILWAYS.—There is a total of 450 miles of railways conducted by private enterprise in Japan, the official list of which follows:

Tobu Railway—between Tokyo and Ashikaga—56 mils. 34;

Chugoku Railway—between Okayama and Tsuyama—48 mils. 60;

Nankai Railway—between Osaka and Wakayama—41 mils. 43;

Narita Railway—between Sawara and Abiko—33 mils. 02;

Iyo Railway—between Takahama and Yokogawara (Shikoku)—27 mils.;

Omi Railway—between Kisho and Hikone—26 mils.;

Yokohama Railway—between Higashi Kanagawa and Hachioji—25 mils. 35;

Chuyetsu Railway—between Jyohata and Takaoka—22 mils. 05;

Jyoha Railway—between Takasaki and Shimonita—21 mils.;

Kawagoye Railway—between Kawagoye and Kokubunji—18 mils. 05;

Toyokawa Railway—between Nagashino and Yoshida—17 mils. 04;

Bisai Railway—between Shin-ichinomiya and Yatomi—15 mils. 06;

Hakata Bay Railway—betweenN ishitozaki and Takami (Kyushu)—15 mils. 04;

Jyobu Railway—between Kumagai and Namikure—14 mils. 02;

O-me Railway—between Tachikawa and Himuki-wada—13 mils.;
Mito Railway—between Mito and Ota—11 mils.;
Izu Railway—between Mishima and O-hito—10 mils. 06;
Kanan Railway—between Kashiwabara and Nagano—10 mils. 03;
Sano Railway—between Koshina and Kuzufu—9 mils. 07;
Ryugasaki Railway—between Sanuki and Ryugasaki—3 mils. 08.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

YINGKOW WATERWORKS.—The entire construction of this system is reported to be completed and in May it will be put in operation.

DREDGING CHEMULPO.—Extensive improvements in this harbor is under way. The harbor is to be deepened and wharf facilities will be added.

SZECHUEN ROAD BRIDGE.—The municipal engineer of Shanghai has recommended the expenditure of Tls. 270,000 in replacing the old bridge.

YOKOHAMA PUBLIC IMPROVEMENTS.—The sum of yen 124,000 will be expended in civil engineering works, reconstruction of the city office and in harbor improvements.

KAMPONG PANCHOR JETTY.—Messrs. Riley, Hargreaves & Co. have secured the contract for the construction of the concrete jetty at Kampong Panchor, Palau Jerejak, Penang.

CHINESE NEW ICE FREE PORT.—Peking is preparing to open the harbor in Lien Shan, Gulf of Pechili, about 200 miles north of Shanhaikwan, and proposes making it a rival for the Japanese port of Dalny.

SYDNEY STREET PAVING.—This city will expend the sum of £90,000 in paving and repaving a number of streets with wood blocks. The estimated cost of this work is placed at 17 shillings a square yard.

SAGHALIEN PORT.—The Japanese government has decided to open the port of Odomari on the southern coast of Saghalien to international trade and the development of better harbor facilities has been authorized.

CORREGIDOR ISLAND FORTIFICATIONS.—The sum of $350,000 has been appropriated by Congress for the construction of barracks on Corregidor Island and $250,000 for forts on the island and in the entrance of Manila Bay.

CHINESE NAVAL PORTS.—The sites available for naval bases are Taku, Chefoo, Taohua Island and Yungching Bay. Weihaiwei has also been approved and an effort will be made to have it retroceded by the British. It is not known yet which one of these sites will be selected for the initial naval station.

CEBU HARBOR IMPROVEMENTS.—Statistics have been submitted demonstrating that the expenditure of ₱1,000,000 in extending the harbor has resulted in a saving to the port of ₱250,000 in one year in the cost of handling cargo and it is proposed to further deepen the harbor from 23 to 27 feet and to make a further extension of the sea wall on the north side of the port.

DAIREN HARBOR RECEIPTS.—The annual receipts of Tairen (Dalny) Harbor for last year are as follows:

	Yen.
January	60,725.37
February	126,136.63
March	101,936.03
April	61,656.11
May	63,656.11
June	61,211.75
July	36,957.45
August	57,404.11
September	36,813.21
October	62,081.93
November	41,867.24
December	140,103.71
Total amount	850,443.78
Average sum	70,869.01

SHIPBUILDING, GENERAL MARINE AND FISHERIES

TONNAGE AT DAIREN.—Fo rthe year 1908 538 steamers called at this port with an aggregate tonnage of 989,244 tons.

RAISING THE KALOMA. The Tanjong Pagar Dock Board used three 15-inch pumps in the salving of this steamer off Passir Panjang.

OIL TANK LIGHTER LAUNCHED.—A twin screw oil tank lighter was recently launched from the works of Messrs. W. S. Bailey of Hongkong.

NEW JAPANESE TORPEDO BOAT.—A new invention reported from Kure is designed to work as a combination of a fish torpedo and a submarine torpedoer. It is reported to be navigable for 24 hours and to have a speed of 30 knots.

CHINESE SIAM NAVIGATION COMPANY.—This company has chartered six Norwegian boats, and two of them were started on the run to Hongkong from Bangkok this month. Two more are expected to start on the run May 1st and the balance later.

COD FISHERIES IN GULF OF PECHILI.—The report from the coast of Pechili is to the effect that the catch of cod this season has been unusual and it is the purpose of the Marine Products Association of Dairen to prepare the product for shipment to foreign markets.

VOLUNTEER STEAMER UMEGAKA LAUNCHED.—The launching of this new steamer took place from the Mitsubishi Shipbuilding and Engine Works Nagasaki, on March 27th. It will be placed on the Fusan-Shimonoseki Ferry service. She is described as follows:
Hull.—Steel.
Length.—335 ft.
Breadth.—43 ft.
Depth.—22 ft. 9 inches.
Gross tonnage.—3,100 tons.
Drafts.—16 ft.
Displacement.—3,600 tons.
Actual horse power.—8,500.
Speed.—21 knots.
Engine.—Parson's triple system steam turbine.
Boilers (Miyabara system water tube).—4.

MINES, MINERALS, AND THE METAL TRADE

JAVA GOLD OUTPUT.—For February the Ketahoen mine produced 1950 oz. of gold and 2646 oz. of silver.

HAINAN TIN MINES.—Reports from Hainan are to the effect that the company developing this property is assured of success.

SOUTH SUMATRA MINING.—A company has been organized to work valuable deposits of silver, gold, and copper in the Lampeng district.

SAGHALIEN OIL WELLS.—A German company has secured a concession to operate on the east coast of Saghalien where good oil has been found in abundance at 120 feet.

KAIPING COAL FIELDS.—An effort is being made to develop these valuable deposits under the direction of the Chinese government. An expert from Germany has been engaged.

NEW DREDGES FOR TONKAH.—The Tonkah Harbor Tin Dredging Co. has ordered two large dredges from Holland. These dredges will have a capacity for raising the tin from a depth of 40 feet.

JAPANESE MINERAL OUTPUT.—For the year 1908 minerals to the value of yen 14,000,000 were won from the different mines of the country, a falling off from the previous year of over yen 3,500,000.

MANCHURIAN GOLD DEPOSITS.—A report from Dalny is to the effect that Belgian prospectors have located valuable gold deposits near Hailungchen. They will probably be worked by Chinese officials.

STANDARD OIL PRODUCT IN JAPAN.—The Otaru Kerosine Oil Company has imported 70,000 cases of the Chester brand of American oil and will put it on the Japanese market at a lower price than the Japanese companies.

RUSSIANS TO USE FUSHUN COAL.—The Chinese Eastern Railway has placed a small order for Fushun coal with the Manchuria Railway and will probably secure its supply entirely from that source if it be found satisfactory.

GWENDOLLIN MINING CONCESSION.—This gold mining concession, owned by Messrs. Jardine Matheson & Co. in Korea, is being developed with success. Five stamp mills are being operated with all the amalgamating and gold saving devices.

YALU COPPER DEPOSITS.—A company has been formed of merchants of Mukden and Kirin to develop copper deposits in the upper reaches of the Yalu and to build a light railway. Connection with Antung would be made by river steamers.

KYUSHU'S NEW COAL PIT.—The Kyushu Steamship Company has announced that the Yasakito coal deposits contain over 180 000,000 tons of coal. Preparations are being made to have the plant equipped to mine 2,000 tons a day by 1911.

ITALIAN MINING COMPANY IN KOREA.—A mining concession has been granted an Italian company in the district of Huchang in North Pyongan, Korea. Reports from Seoul are to the effect that some valuable deposits have been developed recently.

FUSHUN COAL INVASION.—The Korean railways have decided to use Fushun coal and the Kyushu coal mines are already feeling the effect of the competition. There is said to be a surplus of Kyushu coal piled up amounting to over a million tons. It is not improbable that the Japanese Imperial Railways will decide to use the Fushun product.

FINANCIAL AND MISCELLANEOUS

JAPAN'S GRAND EXPOSITION.—The sum available for this enterprise is to be increased to yen 20,000,000.

NEW BURMA OIL GUSHER.—Oil has been struck in the oil fields of Yenangyaung field at a depth of 1350 feet.

JAPANESE TEA.—America and Canada purchased 33,846,062 pounds of tea from Japan during the year 1908.

FORMOSAN TEA.—The total export of tea for 1908 was 12,943,000 pounds upon which was realized yen 4,117,948.

SEATTLE EXHIBITION.—The Japanese government has appropriated yen 70,000 to be used in participating in the exposition.

INDO-CHINA ESTIMATES.—The council of the colony has passed the estimates for 1909 which will represent an outlay of $34,500,000.

JOHORE RUBBER LANDS COMPANY.—This is a new company organized in London with a capital of £300,000. It will control 47,500 acres of land.

ANGLO-JAPAN EXHIBITION.—The expenditure of yen 1,800,000 for carrying out the proposed exhibition has been approved at Tokyo in committee.

FORMOSAN SUGAR SUBSIDIES.—Subsidies to the amount of yen. 1,500,000 are being proposed to encourage the sugar manufacturers in Formosa.

FORMOSAN PAPER MILL.—The Mitsui Bishi firm intends installing a paper mill representing a capital of yen, 1,000,000 at Toroku. Bamboo will be used in the manufacture.

SOURABAYA FIBER CONGRESS.—The Netherlands India Planting Syndicate is interested in promoting a congress of those interested. to be held at Sourabaya in October, 1910.

MANCHURIAN EXPLORATION COMPANY, LTD.—This company was registered in February in London and has for its object the acquiring of grants, concessions, and other privileges in Manchuria, Siberia, and to carry on a general mining and development business.

FRANCO-JAPANESE BANK.—A scheme is afoot to establish a large banking corporation on foreign and Japanese joint enterprise with a capital of 20,000,000 yen. It seems that a syndicate of French capitalists recently made overtures to Mr. I. Morimura, Head of the Morimura Bank, to jointly launch a banking concern on an extensive scale in Japan, in company with Japanese capitalists.

JAPANESE SUBSIDIES.—The following statement of subsidies has been given out:—

The *Tenyo Maru* (San Francisco line)	624,148.20
The *Chiyo Maru* (San Francisco line)	624,148.20
America Maru (South American and San Francisco line)	218.694.58
Nippon Maru (South American line)	253,340.21
Hongkong Maru	253,258.20
Total	1,973,589.39

KOREAN TRADE FOR 1908.—The following is a statement of Korean exports and imports for the past yar:

	Imports. Yen	Exports. Yen
Provisions	4,745,370	10,892,551
Cloth, etc	13,958,038	——
Furniture, etc	5,021,217	——
Raw materials	3,899,404	1,484,140
Half-manufactured articles	5;288,372	140,428
Metal goods	4,528,612	102,920
Miscellaneous	3,604,849	844,337
Total	41,050,072	14,109,425

JAPANESE SCALE OF WAGES.—The comparison of rates per diem between 1897 and 1907 is as follows:—

	1897 sen.	1907 sen.
Farm labourer (men)	28.2	36.0
Farm labourer (women)	15.9	22.0
Girl spinner	18.3	27.0
Gardener	40,4	62.0
Weaver (men)	22.5	42.0
Weaver (women)	15.0	24.0
Carpenter	43.4	75.0
Plasterer	43.6	76.0
Mason	47.4	87.0
Sawyer	43.0	73.0
Day labourer	29.0	49.0

JAPAN'S INDUSTRIAL INVESTMENT.—The total sum of capital invested in various business enterprises during February stands at 15,323,130 yen including 4,750,000 yen of new enterprise and 10,573,130 yen of business extension. The figure is divided as follows:—

	yen.
New Enterprise:	
Banking business	500,000
Electric business	100,000
Mining industry	200,000
Marine Product industry	100,000
Railway and light railway	600,000
Manufacturing industry	300,000
Insurance business	500,000
Commercial and others	2,450,000
Extension:	
Banking business	1,923,130
Manufacturing industry	8,150 000
Foreign capital:	
Spinning industry	500,000

THE SHANGHAI-NANKING RAILWAY

The returns of this railway for the week ending January 16, 1909, show an excess in earnings and numbers of passengers carried over all previous records, says the *North China Daily News*. When the line was first opened, and the more populous and busy parts of the country were connected, such as Shanghai and Soochow, and only 114 miles of railway were opened, the earnings per mile per week were $155.70, and the numbers of the passengers 387 on the average. Later on when 159 miles were opened, the earnings per mile per week and the number of passengers carried remained about the same, the figures being $154.67 and $87 passengers. The history of all railways is that the extension of railway communication, as railway statistics show, lowers the number of passengers carried and the earnings per mile, because populous cities are not found throughout the length, but on this railway the opposite is taking place, for now that 203 miles, or the whole line, has

been opened, the week ending January 16, 1909, has eclipsed all previous records, and the number of passengers carried during that week has amounted to 79,089, earning $34,288, or an average of 390 passengers a mile, and $168.68. These figures are better than any railway of the same length can adduce anywhere in the East, and distinctly show that the future of railways in China, provided due attention is paid to the comfort of passengers, and to the civility of the railway servants, is more than assured. On this railway civility to the public and the prevention of the loss of "face" to Chinese passengers by Chinese clerks and ticket collectors domineering over them has been insisted upon, and nothing has received stronger treatment than any complaints to the contrary. This policy bears its fruit in giving the railway much the best of the competition with the steam-launches and the creek.

The figures given above are higher even than the week in which the great Kiangwan festival takes place, which generally inflates the earnings especially, and there is no doubt that this week of the China New Year in which the trains have been very full, in fact more full than comfortable, will beat even that total. The record is one that Mr. A. W. U. Pope, the general manager, and the members of the staff may deservedly look back upon with feelings of satisfaction. Much credit is also due to Taotai C. L. Wong, the Managing Director, and a former student in America, to whose tactful influence is due the absence of all friction in the affairs of the railway.

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*LONDON, ENGLAND, METAL MARKET

March 1909.

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	60 10 0	..	61 0 0
*Best Selected	61 0 0	..	61 10 0
*Electrolytic	61 0 0	..	61 0 0
*Sheets and sheathing	71 0 0	..	—
*Flat bottoms	74 0 0	..	—
STANDARD †Cash	56 5 0	..	56 10 0
STANDARD †Three Months	§57 2 6	..	§57 5 0
*Copper tubes, seamless per lb.	0 0 9	..	—
*Lake	61 10 0	..	62 0 0

* Less 3½ per cent. † Net.

§ In last week's issue the quotation for Copper, Standard, three months, should have read, as in the text, £56 12s. 6d.—£56 15s. 0d.

ALLOYS.			
Brass: Wire	0 0 6½	..	—
,, Tubes (solid drawn)	0 0 7¾	..	—
,, Sheets	0 0 6¾	..	—

TIN.			
English ingots, f. o. b.	131 0 0	..	132 0 0
,, bars	132 0 0	..	133 0 0
,, refined	133 0 0	..	134 0 0
Straits... Cash	130 0 0	..	130 5 0
Straits... Three months	131 10 0	..	131 15 0
Australian spot	130 0 0	..	130 10 0
Banka (in Holland) Cash	131 13 9	..	—
Banka (in Holland) Three months	132 5 0	..	—

LEAD.			
Spanish or soft foreign	13 6 3	..	13 8 9
English pig, common	13 10 0	..	13 15 0
,, L. B	14 2 6	..	—
,, sheet and bar lead	14 12 6	..	—
,, pipe	15 2 6	..	—
,, red	16 5 0	..	—
,, white	18 0 0	..	—
,, patent shot	16 12 6	..	—

SPELTER.			
Silesian ordinary brands	21 12 6	..	21 15 0
,, special brands	22 0 0	..	22 5 0
English Swansea	22 2 6	..	22 12 6
Sheet zinc	24 15 0	..	—

ANTIMONY.			
Antimony	29 0 0	..	31 0 0
,, Crude	13 10 0	..	14 10 0
,, Ore (basis 50%)	7 10 0	..	8 10 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	8 7 6	..	—

MANGANESE. Ore, c.i.f., U. K. ports.	Per unit.*		Per unit.*
1st quality, 50 per cent. and upwards	0 0 9½	..	—
2nd quality, 47 per cent. to 50 per cent	0 0 8½	..	—
3rd quality, 40 per cent. to 47 per cent	0 0 7½	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	170 0 0	..	175 0 0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

*Mining Journal.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

	U. S. Currency.
Abrasives.—	
Bort, good drill quality ....carat.... $	85.00
Carborundum, grains ....lb....	.10-.17
Corundum ...."....	.07-.10
Emery, grain ...."....	.035-.045
Pumice Stone, American powdered ....100 lbs....	1.60-2 00
Acids.—	
Hydrochloric 20° ....lb....	1.25-1.50
Nitric, 38° ...."....	4.25-4.625
Sulphuric, 66° bulk ....ton....	18.00
Aluminum, Sulphate Com'l ....lb....	1.10-1 75
Antimony, needle ...."....	.05-.06
Arsenic, white ...."....	05- 055
red ...."....	.07½-.70
Asphaltum.—	
Trinidad ....ton....	28 00-30.00
California ...."....	21.00-27.00
Bleaching Powder, 35% ....100 lbs....	1.25-1.40
Blue Vitriol ....lb....	5.00
Bone Ash ...."....	.02⅝-.04
Borax ...."....	.04½- 05½
***Caps** detonating ....M....	-7.50
Cement.—	
Portland, American ....500 lbs. bbl....	1.55-1.60
Foreign ...." " "....	2.25-2.90
Rosendale ....300 " "....	.85
*Green Island ....375 " "....	2.75
*Alsen	3.00
Clay, China.—	
American common ....lg. ton....	8 50-9.00
Foreign ...."....	10.00-17.50
***Coals.—**	
Batan, at Mines ....ton....	3.00
Australian ...."....	5 50
Copper ....lb....	.13-.14
***Dynamite** 40% ...."....	.20
Feldspar ground best ....sh. ton....	10 50-15.00
Fire Brick, American ....M....	30.00-40 00
Imported ...."....	30.00-45.00
Fire clay, St. Louis Mill ....ton....	2 50
Fuse—Blasting ....1,000 ft....	7 50
Graphite—Ceylon, lump ....lb....	.04-.10
Large lump ....lb....	.07-.10
Gypsum—Fertilizer ....sh ton....	7 00
Powdered ....sh. ton....	12.00-20.00
Lead ....lb....	-.04
Magnesite-Greece, crude, 95% .lg. ton.	8.00-10 00
Bricks, domes ....per M....	160-200
Manganese, Ore, 80-85% ....sh. ton....	20.00-50.00
Mercury, export flask ....75 lbs....	36 00-39.00
Paints and Colors.—	
Litharge American P'w'd ....lb....	.06½-.06¾
Ochre, Am. Com ....sh. ton....	8.50-9.00
Paris green, pure, bulk ....lb....	.26
Turpentine, spirits, bbl ....gal....	.44½- 4
White lead, Am. dry ....lb....	.05¾- 0
Am. in oil ...."....	.06½-.06
Zinc, white, Am. extra dry ...."....	.05⅜-.05
Phosphates, Acid ....per unit....	.65-.7
Florida hard rock ....lg. ton....	10 25-10.5
Land pebble 68% .... "....	5.25-5 5
Potassium Cyanide (98-99%) ....lb....	.18-.19
Platinum ....oz....	28 00
Platinum, Scrap ....oz....	17 00
Spelter ....lb....	.045- 046
Nickel ....Small lots ....lb....	.50- 60
***Powder**, black blasting A ....lb....	.15
*Judson ...."....	.14½
Pyrite, Domestic Non-arsenical, Lump ....unit....	.11-.11½
Imported non-arsenical lump ...."....	.12½- 13
Imported, arsenical ...."....	.12-.12½
Saltpeter crude ....100 lbs....	4.50-5.00
Silica, Lump quartz ....lg. ton....	5 00-6 00
Ground quartz, ordinary "....	13 00-15 00
Glass sand, ordinary ...."....	2.7
Silver ....oz....	.55½-.55
Sodium cyanide (100% KCN) ....lb....	.1
***Steel**, octagon drill ....lb....	.
Sulphur, Louisiana prime ....lg. ton....	22
Roll ....100 lbs....	1 85-2.
Flowers sublimed ...."....	2 20-2.
Talc—Domestic ....sh. ton....	15.00-25.
Italian, best ...."....	35 00-40.
Tin ....lb....	.9½
Zinc, Sheet ....100 lb....	7.
Dust ....lb....	.05⅜-.06

*Manila quotation.

HEMP STATISTICS, 28th MARCH, 1909.

(Courtesy of C. S. Nicholson, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, MARCH, 1909.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909	Forward	44,042	16,022	66,04	13,942	10,762	2,020	3,963	157,455
March 2	Tean	350	...	...	...	885	...	250	1,485
" 5	Zafiro	850	...	...	...	...	...	800	1,650
" 3	Indrapura	...	...	18,267	...	...	...	...	18,267
" "	Prinz Waldemar.	...	...	...	...	50	...	275	325
" "	Taiyuan	...	...	...	...	...	140	...	140
" 6	Yuensang	1,650	...	...	...	100	...	500	2,250
" 8	Polyphemus	11,618	9,712	...	...	2,303	...	...	23,633
" 11	Gymeric	...	...	...	1,703	...	...	141	1,844
" 12	Kumano Maru	...	...	...	...	...	...	225	225
" "	Rubi	1,900	300	...	...	675	...	350	3,225
" 15	Schuylkill...Cebu	...	...	11,057	...	...	...	...	11,057
" 16	Tean	2,950	2,800	...	...	...	...	...	5,750
" 19	Zafiro	...	...	...	...	...	...	150	150
" "	Yuensang	...	...	...	...	68	...	193	261
" 18	Banca ....Cebu	4,396	...	...	...	600	...	...	4,996
" 22	Nikko Maru	...	...	...	...	...	1,435	...	1,435
" 23	Isla de Luzon	...	1,750	...	...	41	...	...	1,791
" 24	Taming	...	1,750	...	...	...	...	...	1,750
" 26	Rubi	...	1,700	...	...	...	...	660	2,360
" "	Loongsang	...	250	...	...	100	...	760	1,110
" 22	Sungkiang...Cebu	100	3,313	...	...	...	...	73	3,486
" 27	Schuylkill	...	...	20,485	...	...	...	...	20,485
" 30	Tean	750	...	...	...	700	...	...	1,450
" 29	Prinz Waldemar.	...	...	...	...	...	100	...	100
" 30	Prinz Sigismund.	...	...	20,485	...	...	...	422	422
		68,606	37,597	116,513	15,645	16,284	3,695	8,782	267,222

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, April, 1909.

STOCK.	WHEN, ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14,500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5/- @ ex 1/8 ¾ = $26.024, making in all $47.966 for 1908	5½	$920 sellers £86-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$187½ buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7/6 making 15/- for 1907	5½	Tls. 100 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727,649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$850 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-08	$12 and bonus $3 for 1906	7	$225 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7¾	$105
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8½	$315 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	$7,000	$1,035	31-12-07	$1 for 1906	....	$7 buyers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7½	$35 buyers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $79,428 $25,344	$20,279	30-12-08	Final of $1½ making in all $2½ for 1908	8¾	$29½ sellers
Indo-China Steam Navigation Co., Ld. (Preferred)	1882 m	£600,000	2) 60,000	£5	£5	£10,000 i £240,000	£13,700	31-12-07	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	5½	$40 buyers
Do. Do. (Deferred)			2) 60,000								$20 buyers
Shanghai Tug & Lighter Co., Ld.	1903	Tls. 1,500,000	20,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½	Tls. 50 buyers
Do. Preference			10,000							7	Tls. 52½ buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a/c 1908	6	54/- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 / 50 cts. for year ended 30-4-08	4 3½	$23½ $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 481,479 e Tls. 44,100 i Tls. 81,200 q Tls. 7,000	Tls. 2,215	31-12-08	Final of Tls. 1½ making Tls. 2½ for 1908	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3¾	$137½ sa. & bu.
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	—	$17
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 127½ sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1/6 (Coupon No. 11) for year ending 29-2-08	7	Tls. 18½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$8 sales
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	x 18,000	$25	$25	$42,986 $53,601	Dr. $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$50 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	10	$80 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	5¾	Tls. 85 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 22,818	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6	Tls. 164 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 103 buyers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	....	$19½ buyers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$18 sales
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	7½	$83 sales
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	7	$100
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7	$8¾
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Final of Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	7	Tls. 118 sales
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 129	31-12-08	Final of Tls. 2 making Tls. 5 for 1908	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4	Tls. 122 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	5½	$9 sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

Stock.	When Established	Capital.	No. of Shares.	Value.	Paid Up.	Reserve	At Working Account.	Date.	Last Dividend.	Approximate Yield per cent. per annum at Present Quotation.	Closing Quotations
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 90
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 103 buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 31,172	Tls. 15,911	31-12-08	Tls. 50 for 1906	....	Tls. 385 buyers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12 6	12/6	£1,500	£648	31-12-08	1s. 10½d. for 1907=$1.037	10	$10 sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for, 1907	9¾	$12½ sales
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	8½	$5
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	....	$9½ sellers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	i 10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	5¾	$14½ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Interim of 40 cents for % 1908	9¾	$9.30 buyers
H. Price & Co., Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holts, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10	$24 sales
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	$20.000	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08	6¼	$19½ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	9¾	$175 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8¼	$24
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 63,914 / 21 Tls. 547,500	Tls. 316,682	31-10-08	First quarterly dividend of Tls. 12½ for % 1909	6¼	Tls. 785 buyers
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $1	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 / 4	$14 / $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¾	Tls. 115 buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / w Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	6	Tls. 132½ buy. ex [div.
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 437½ sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7½	$5½ sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end, 31-12-1908.	5	$10 sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6¼	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / e $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6¾	$9 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$2½ buyers

Loans and Debentures.	Agents for the Loan.	Amount of Loan.	Par Value.	Outstanding Bonds.	When Payable.	Closing Quotations.
China Government, 7 per cent. Silver Loan 1908 F.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorised Capital
n Sinking Fund.

o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.

3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.

18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund.
21 Special Cash Reserve.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	3rd Div. of Gold cents 50 making gold $1½ for year ended 30th June 1907.	Dec. 31, 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd.	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1908
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907	May 16, 1908
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08	May 30, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4-08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1908	Feb. 8, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08	Dec. 1908
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do 1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do 1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do 1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1894	,, 108	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do 1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do 1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do 1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 102	,, 2,000,000	" 200,0"0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures 1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(COURTESY MESSRS. FRASER & CO., BROKERS, SINGAPORE, APRIL, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buy	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	......	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	5.50	6.00	6.00
1907	$300,000	225,000	22,500y	10	10	......		Bruang Ltd.	6.10	6.25	6.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.50	8.00	8.00
1903	£500,000	444,769	444,769a	1	1	......		Duff Development Co., Ltd.	4.00	4.50	4.50
1907	$400,000	375,000	37,500b	10	10	......		Kanaboi, Ltd.	1.00	1.25	1.25
1901	£60,000	60,000	60,000	1	1	......	2/- interim for 1908	Kinta Tin Mines, Ltd.	9.25	9.65	9.65
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	3.25	3.50	3.50
1905	$150,000	99,000	9,900c	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	4.00	4.00
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	7.75	8.25	8.25
1906	£30.000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	....	5/-	5/-
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	2.25	2.50	2.25
1906	£250,000	179,500	500,000h	5/-	5/-	......		Pahang Consolidated Co., Ltd.	18/6	19/6	19/6
			54,500	1	1	......		" " " 7% *Pref.*	....	....	nominal.
1907	£100,000	80,000	80,000i*	1	1	......		Pengkalen, Ltd.	6.00	6.10	6.00
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.25	4.00	4.00
1907	$450,000	300,000	30,000g*	10	10	......		Rahman Hydraulic Tin Ltd.	....	8.00	8.00
1905	£27,000	21,750	21,750e	1	1	......	1/- interim during 1907	Rambutan, Ltd.	....	6.75	6.75
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	6.40	6.60	6.60
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	6.00	6.25	6.25
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd.	2.00	2.25	2.00
1898	Gs2,500,000	2,500,000	25,000	100	100	......	100% for year ending 31-12-08	Redjang Lebong Mining Co., Ltd.	....	....	1020.00
1900	$110,000	110,000	22,000	5	5	......	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.20	1.25	1.25
1907	$550,000	500,000	50,000o*	10	10	......		Salak South, Ltd.	6 25	6.50	6.50
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	1.25	2.00	2.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	6 75	7.00	7.00
1899	$230,000	230,000	23,000	10	10	......	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	4.75	5.25	4.75
1907	£90,000	70,000	70,000z	1	1	......		Tekka, Limited	9 50	9.75	9.75
1902	£160,000	149,185	149,185f	1	1	......	5/- during 1907	Tronoh Mines, Ltd.	7.00	7.25	7.00
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1	......	10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.12.6	5.0.0	4. 12. 6.
			103,500	1	17/6	......		" " " *Contributory*	4.10.0	4.15.0	4. 10. 0
1905	$200,000	126,000	12,600f*	10	10	7,400	12½% interim for 1908	Balgownie Rub. Estate Ltd. *Fully paid*	26.50	26.75	26.75
1904	£30,000	20,187 10/-	19,000	1	1	......		Batu Caves Rub. Co., Ltd.	3.10.0	3.15.0	3. 10. 0
			4,750i	1	5	......					
1907	£30,000	21,000	18,000n*	1	1	......		Bukit Lintang Rubber Estates, Ltd.	1.0.0	1.3.0	1. 0. 0
			6,000	1	10/-	......		" " " *Contributory*	10/-	12/6	10/-
1903	£70,000	66,700	66,700j	1	1	......	12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	5.5.0	5.10.0	5. 5. 0
1906	£35,000	27,000	6,000	1	1	......		Castlefield (K.) R. Estate, L., *Fully pd.*	21/-	22/6	21/-
			24,000	1	17/6	......		" " " " *Contributory*	....	....	18/6
1906	$150,000	125,000	12,500k	10	10	......		Castlewood Rubber Co., Ltd.	3.75	4.00	4.00
1904	£16,000	16,000	10,000	1	1	......	17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	6.2.6	6.10.0	6. 10. 0
			6,000	1	1	......	20% interim for 1908	" " " " 5% *Pref.*	....	....	7. 0. 0
1905	£75,000	58,507	55,007l	1	1	......	5% interim for 1908	Consolidated Malay Rub. Estates, Ltd.	3.10.0	3.15.0	3. 10. 0
			7,000	1	10	......					
1906	£310,000	259,530	181,454m	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.7.6	2.10.0	2. 7. 6
			123,546	1	12/6	......		" " " " *Contributory*	1.9.6	1.11.0	1. 9. 6
1905	£50,000	36,500	23,000	1	1	......		Kapar Para Rubber Estates, Co., Ltd.	2.11.0	2.15.0	2. 11. 0
			27,000	1	10/-	......		" " " " " "	....	....	1. 15. 0
1906	£180,000	180,000	180,000	1	1	......	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.13.6	1.15.0	1. 13. 6
1907	£320,000	232,395	197,395c*	1	1	......		Lanadron Rubber Estates, Ltd.	2.4.0	2.5.0	2. 5. 0
			70,000	1	10/-	......		" " " *Contributory*	1.5.6	1.7.6	1. 5. 6
1906	Gs 175,000	175,000	540	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	....	....	250.
			160	250	250	......		" " " " " *Deferred*	....	....	250.
1906	$250,000	230.950	23,095n	10	10	......		Ledbury Rubber Co., Ltd.	11.50	12.00	11.50
1895	£100,000	98,324 8/-	883,244d*	2/-	2/-	......	20% interim for 1908	Linggi Plantations Ltd., *Ordinary*	13/6	14/-	13/6
			10,000	1	1	......		" " " 7% *Pref.*	....	....	1. 0. 0
1906	£300,000	300,000	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	1.13 0	1.14.0	1. 13. 0
			185,000	1	1	......		" " *Ordinary*	1.7.6	1.8.0	1. 7. 6
1903	£30,000	22,500	22,500o	1	1	......	45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	7.5.0	7.10.0	7. 10. 0
1906	$250,000	225,000	22,500	10	10	......		Ragalla Rubber Co., Ltd. *Ordinary*	10.75	11.00	10.75
		25,000	2,500	10	10	......		" " " 8% *Preference*	11.00	....	11.00
1904	£20,000	16,943 8/-	20,000a*	1	1	......		Sagga Rubber Company Limited	2.0.0	....	2. 0. 0
1904	$100,000	99,000	990j*	100	100	......	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	300.00	305.00	305.00
1898	£30,000	30,000	300,000	2/-	2/-	......	25% interim for 1908	Selangor Rubber Co., Ltd.	1.0.6	1.2.0	1. 0. 6
1905	$500,000	500,000	5,000	100	100	......		Singapore Rubber Co. Ltd.	110.00	115.00	110.00
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd.	120 00	125.00	120.00
1905	$100,000	100,000	10,000	10	10	......	7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	12 25	13.00	12.25
1906	£110,000	100,000	100,000k*	1	1	......		Sungei Kapar Rubber Co., Ltd.	2.5 6	2.10.0	2. 5. 6
1904	£50,000	45,710	41,920p	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	1.17 6	2.0.0	1.17. 6
			7,580	1	10	......		" " " " "	....	....	1. 7. 6
1904	£60,000	50,600	506,000q	2/-	2/-	......	25% interim for 1908	Vallambrosa Rubber Co., Ltd.	16/6	16/9	16/6
								GENERAL			
1894	£5,377.10.0	4,805	7,688b*	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025m*	100	100	......		Brunei Oil Royalty, Ltd.	....	100.00	100.00
1907	$1,500,000	1,099,672	27,083l*	10	10	......	5% interim for 1908	Eastern Smelting Co., Ltd.	6.75	6.80	6.75
			118,406	10	7	......					
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	140.00	142.50	140.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 14,500,000u 250,000v	£2-0-0 per share and bonus of 5/- at ex.- 1/8¾ half year ending 31-12-08	Hongkong & Shanghai Bank'g Corpt'n.	....	....	86.0. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	....	95.00	95.00
			6,000	100	....	......	7% for year ending 31-10-08	" " 7% *Pref.*	....	100.00	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100	......	8% " " " "	" " 8% *Cum. Pref.*	....	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-08	Maynard & Co., Ltd.	18.50	19.00	19.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	55.00	57.50	55.00
			3,750	100	100	......	7% for year ending 31/12/07	" " " " 7% *Pref.*	95.00	97.50	97.50
1903	$600,000	250,000	25,000r	10	10	......	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	7.00	7.25	7.25
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	....	50.00	50.00
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	3/3	3/9	3/6
1904	$160,000	112,000	1,120e*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	....	130.00
1890	$500,000	498,000	4,980h*	100	100	760,000w	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	195.00	197.50	195.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409x	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	48.75	49.00	49.00

a { 11,282 unissued; 43,9496% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h { 100,000 " *Ord.*; 45,500 " *Pref.*
i 6,250 "
j 3,300 "
k 2,500 "
l 12,993 "
m { 4,140; 8,60 subscribed by employees
n 1,905 unissued.
o 7,500 "
p 500 to be issued to employess
q 94,000 unissued.
r 35,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "
a* 4,595 part-paid shares
b* 916 unissued
c* 52,605 unissed.
d* 16,756 "
e* 480 "
f* 7,400 "
g* 15,000 "
h* 20 "
i* 20,000 "
j* 10 "
k* 10,000 "
l* 4,511 "
m* 475 "
n* 6,000 "
o* 5,000 "

DEBENTURES

Name	Buy	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% $ 600,000	....	1%	1% prem.
Riley, Hargreaves & Co., Ltd. 6% 284,000	....	1%	1% prem.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem. nom.
" " 5% 1,878,000	6%	....	6% prem.
" " 4½% 1,600,000	3%	5%	3% prem.
" " 4% 602,900	7%	....	7% discount.
Straits Engineering Syndicate, Ltd. 6% 45,000	....	par.	par.
Tanjong Pagar Dock Board 5% 1,050,000	par	....	par.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MARCH, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	65 Sales
Oriental Hotel, Ltd., Ordinary }	250,000 }	3,000	50	50	306,090.49 }		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 98.70
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 97.70
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 91.90
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 91.90
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 90.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 92.10
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.20
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 95.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 97.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 97.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 97.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 160.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	4%	June and Dec.	,, 59.65
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 46.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 73.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 32.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 113.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 97.80
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 95.20
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 39.20
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 66.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 13.25
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 21.05
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 35.00
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 78 75
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 51.00
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 78.50
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 55.95
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 84.90
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 93 20
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.50
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 13.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 125.40
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 102 00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 12.00
Tokyo Stock Exchange Company	50	50	11½%	June and Dec.	,, 144.40
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 128.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 410	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 190	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, —	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 110	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60 000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 75	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,100	,, 1,150	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co.	,, —	,, —	,, 50	1906	£ 40,000	4,000	£ 10	£ 4, per Share	—	—	—

PHILIPPINE SHARE REPORT

APRIL 1ST, 1909

Name	When Established	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000		₱ 5,000	Jan. 4, 1909		No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000			7% for year 1908	190 nom.
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2		38,000	Feb. 2, 1909		No Sellers.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100					No Sellers.
*Compania Maritima		1,018,000	200	5,090	5,090	200					₱40 buyers
*El Varadero de Manila		350,000	100	3,500	3,500	100					Sellers 70
Export & Import Lumber Co		200,000	200	1,000	1,000	200					No sellers.
*Fabrica de Hielo de Manila		350,000	50	7,000	7,000	50				18% for year 1908	₱80 sellers
*Germinal Cigar Factory		500,000	500	1,000	1,000	500	₱285,000			6% for year 1908 and 6% on capital	700 sellers
H. E. Heacock Co	1909	100,000	100	1,000	800	100				First year	No sellers.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200					No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20				First year	
*La Concha Button Factory		75,000	100	750	750	100				10% for year 1908	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000					No sellers.
Luson Stevedoring Co	1909	250,000	25	10,000	4,200	25				First year	
Walter E. Olsen Co., Inc	1909	500,000	100	5,000	2,033	100				First year	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1					£1.10 s.
Palomar Park Amusement Co	1908	300,000		300,000	60,312	.50					₱1.
Phil. Hemp Machine Co	1907	150,000	100	1,500	1,235	100					No sellers.
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200			Mar. 1st, 1909	₱3 a share for 1908	₱50
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10					No sellers.
*Philippine Co., Ltd		750,000	10	7,500	7 500	10					₱5 buyers.
Philippine Rosin & Turpentine Co		150,000	1	150,000	70,000	1				First year	
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10					No sellers.
*San Nicolas Iron Works		300,000	500	600	600	500					₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000						First year	No sellers.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100		₱9,674.75	June 30, 1908.		No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10					No sellers.

* John T. Macleod's share list.

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104⅜
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1 1915	104⅜
Do.	Feb. 1, 1906		$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104⅜
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104⅛
Do.	Jan. 2, 1907		$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104⅜
*Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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Ynchausti & Co.

ARTIFICIAL STONE
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UNIV OF

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, MAY, 1909 No. 12.

HARBIN: THE AFTERMATH OF RUSSIA'S ADVENTURE

By GEO. BRONSON REA.

Shanghai, April 26th, 1909.—One of the greatest achievements in city construction witnessed by the world has been carried on by Russia in the heart of Manchuria. Americans are familiar with mushroom towns which have grown into cities of prominence, but behind all such growths there have been invariably some tangible commercial reasons for rapid development. The same has been witnessed in other parts of the world, where large towns and cities have sprung up owing to a mining boom, or the opening up of new fertile country. But Russia has shown the world how to design and create a city, overnight as it were, to further her political designs and expand her influence in the Orient.

In the building of such cities as Vladivostok, Port Arthur, and Dalny, Russia clearly exposed her policy on the Pacific, and her determination to obtain a preponderating influence in China, while in Harbin, an altogether different type of activity was displayed, in which her industrial ambitions were disclosed.

In September 1896, the agreement between the Russo-Chinese Bank and the Chinese Government was concluded for the construction and management of the Chinese Eastern Railway. This was the link which was to bind the Pacific littoral with the great Trans-Siberian Railway, through Chinese territory in northern Manchuria, thus avoiding the greater task of

(Continued on page 423.)

MAJ.-GEN. HORVATH, GENERAL MANAGER AND CHIEF OF THE RAILWAY STAFF OF THE C. E. RY., THE DOMINANT SPIRIT OF HARBIN

VICTOR F. LUBA, RUSSIAN CONSUL-GENERAL AT HARBIN, WHO WAS RECALLED

PRINCE KHILKOFF, CHIEF ENGINEER AND ASSISTANT CHIEF OF THE C. E. RY. STAFF, HARBIN

MAJ.-GEN. CHICHAGOFF, CHIEF OF THE RAILWAY GUARDS, HARBIN

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.
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RECENT PHILIPPINE APPOINTMENTS AND THE CIVIL SERVICE

The recent promotion of Mr. Frank A. Branagan, Treasurer of the Philippine Islands, to the position of Commissioner, of Deputy Treasurer, Mr. John L. Barrett, to succeed Mr. Branagan as Treasurer, and the promotion of Mr. William H. Clarke, Deputy Auditor and Acting Auditor of the Philippine Islands, to the position of Auditor, is the most striking evidence that President Taft proposes to ignore any claim to appointment in the Philippine service but that of merit and length of service. The notorious "spoils system" that has heretofore served to destroy every attempt at establishing a permanent and healthy civil service will not be allowed to interfere with the perfecting of the system in the islands. The payment of political debts by appointments that would cheat a faithful and meritorious official out of his just promotion will not be a feature of the policy of this administration. And the wisdom of such a course is very evident to those familiar with the difficulty experienced by the administration in the Philippines, heretofore, when there were no certainty that broken down politicians would not be pensioned off there. The general feeling of appreciation of these appointments is most gratifying to the department chiefs, and evidence of it is taking the form of the desire of many members of the service to remain permanently, who were seriously considering the advisability of returning to America and starting a career anew.

The promotion of these men is recognized as the reward of the most faithful service under the most trying conditions. They have to show for their work the perfect organization of the Bureau of the Treasury and the Bureau of Audits. When it is remembered that there was no precedent in modern accounting upon the arrival of the Americans in the islands and the work in its initial stage was confined to organization and to perfecting a system of audits to meet conditions with which few, if any Americans were familiar, it is remarkable the success that has been attained by the Bureau of Audits in a short decade. To Mr. Clarke is due the present satisfactory system evolved and his promotion was a just recognition of his valuable service to the administration and the islands.

The same might be said of the Treasurer's office. Mr. Branagan came with the Taft commission and has been the head of that bureau ever since. He is the father of it, having directed its organization and the perfecting of the machine which is taking care of Uncle Sam's wealth so thoroughly. In this work he has had the assistance of Mr. Barrett, a young man of marked ability who has earned his reward.

THE AMUR RAILWAY

With the ratification of the Portsmouth Treaty, the political and strategic advantages of the Chinese Eastern Railway were rendered useless by Article VII, which debarred Russia from using the line for military transport. Checked in her designs on Manchuria, and prohibited from carrying out her ambitions on the Pacific, by destroying her strategic line of communication, Russia determined to safeguard her interests and build an all Russian road through her own territory. Japan is within striking distance of the present Manchurian highway to the Pacific, and in the event of future hostilities the link binding the Ussuri province with the mother Country would be broken, with the certainty of the loss of the Pacific littoral and perhaps the Pri-Amur region and Trans-Baikalia.

It was not without great opposition that the Government Bill for the construction of the new railway succeeded in passing the Duma. Starting at Stetinsk, it will skirt the Amur river along its northern bank to Harvorovsk, making connections there with the Ussuri Railway for Vladivostok. The Government emphasized the urgent necessity of developing the natural resources of the region traversed by the road and bring her distant provinces into communication with the heart of the Empire. The idea that the road was to be built for strategic purposes was deprecated, and it was pointed out that opposition to its construction was equivalent to advocating cutting adrift the Pri-Amur and the Ussuri, the best districts for colonization in all Siberia. Without the Amur railway, this immense and valuable frontier could never be thoroughly colonized or developed.

Despite, however, all assurances to the contrary, the world will view the construction of this road as the first step in Russia's set desire to regain her lost position and prestige in the Orient. At present, the region traversed by the road is so cold that the mean annual temperature is several degrees below freezing point. Dense forests line the banks of the Amur and cover the country for miles back. Cereals grow very poorly, and the productivity of the soil is insufficient to meet any great increase in population. The population is sparse, and a huge colonization scheme will have to be forcibly carried out to compel settlement.

Under the direction of the Ministry of Agriculture at St. Petersburg, an emigration campaign has already been organized and is being prosecuted with all the funds available. Even this has not led to any great increase in the Pri-Amur, the settlers prefering the Altai regions or the Maritime Provinces. The importance of the Amur colonization is, however, highly appreciated by the Government, and the machinery is being perfected to bring about the desired result. Up to 1906 $1,300,000 gold had been appropriated for the work, and that year the sum of $2,800,000 was set aside. In 1907, $6,750,000 gold was provided, and last year, 1908, $9,500,000. As a return for this expenditure in 1906, some 30,000 families or 180,000 persons were sent out, in 1907, 68,500 families or 400,000 persons, while in 1908 it is estimated that 100,000 families with 600,000 persons were located in Eastern Siberia. But most of these settlers have followed system and determination in their selection of homes and the movement was chiefly in the direction of the Altai regions while there was a marked increase in the settlement of the Maritime Province. The Amur district was passed by for more promising and fertile lands.

The passage of the Act, authorizing the construction of the Amur Railway, had these conditions in view, as it was stipulated that it must be built by Russian labor. The government hopes to complete the line by 1912, at an estimated cost of $110,000,000 gold. To accomplish this an army of labor must be transported. The severity of the climate and the short working day reduces the four years to less than half that time as compared with similar work in temperate zones. At least 200,000 men would be necessary to complete the line in this time, and once there a large percentage will remain permanently, and form a nucleus for future increase in population. The engineering difficulties of the line are many, and present problems not encountered in other Russian railways. Probably the two most important problems will be the passage of the Kinghan mountains and the bridging of the Amur at Harboroosk.

—G. B. R.

JAMES F. SMITH, GOVERNOR-GENERAL OF THE PHILIPPINES.

The departure of Governor-General Smith on six months' leave and the prospect, if his own wishes are respected, that he may enter other fields of activity in the homeland of America, was the occasion in Manila for the manifestation of the depth of affection for this democratic Californian held by all classes and nationalities in the islands. Perhaps no man, with the exception possibly of Governor-General Wright, made more personal and enduring friendships during his term as Executive than James F. Smith. When he undertook the duties of office, he gave as his motto the expression "Pull Together," and it might be said that his whole administration policy encouraged, and successfully, that sentiment among all classes and interests in the islands. He simply paraphrased General Wright's advice when at a press banquet he said to the pressmen, "We are all in the same boat together. Now do not rock the craft, just for the pleasure of hear-

ing the ladies shriek." General Smith was a great admirer of Wright and Ide. He was ever giving credit for any success attained to these two predecessors, who, he said, "Prepared the way and made it possible for me to accomplish nything with any degree of success." He was entirely unselfish and expected no credit for his work. He always said that all his success was largely due to those who served him faithfully as soldiers and in the different departments of which he has been the head. Indeed, all his utterances on the eve of his departure were those of a modest, unassuming citizen, who believed that he had been specially favored by Providence in his career.

Perhaps the most desirable outcome of his administration has been the improved relations with the neighboring sections of the Far East. General Smith has added to the historic hospitality of Malacañan. He made it typical of true democracy as the wellbred American gentleman understands it. It made an impression upon those visitors from Far Eastern sections that was, to say the least, a revelation. And the sincerity that characterized his relationship to one and all, made many lasting friendships among men of every nationality.

Every commercial and social organization in Manila paid tribute to the General. Many were the sincere expressions of love and affection for the man and the official. Of these manifestations he said, "It is now on the eve of my departure that I realize how deep the influence of association is rooted. The eleven years spent here have made friendships of a lasting character. To separate from them is much more painful than I could have anticipated. They form themselves almost without our knowledge, and we have our realization of them in full measure when we come to the point of separation and then only do we fully appreciate its significance. I have appreciated the touching evidences of personal affection for me and I am more than gratified to know that I have the love and regard of the men who fought with me in the field, of those who aided me in my administration, and of those whom I have met socially and in a business way. The sincerity of it all touches me deeply."

James Francis Smith was born in San Francisco January 28th, 1859. He graduated from Santa Clara College in 1878 with the degree of A.M. He then attended the Hastings Law School and was admitted to the bar of San Francisco in 1885. He practised law in San Francisco and was thus engaged when the war broke out in 1898 and he was chosen Colonel of the First California Volunteer Infantry. He arrived in the Philippines with his regiment on June 30th, 1898, and participated in the capture of Manila, August 13th of that year. He was appointed Deputy Provost Marshal of the city and served as president of a military commission, and on October 22nd was put in charge of a brigade in the first division, Eighth Army Corps. He was a member of the commission appointed to treat with Aguinaldo. At the outbreak of hostilities he participated in the battle of Santa Ana, San Pedro Macati, Pateros, Taguig, and it was said of his activity that he would have captured Pasig had not his victorious troops been recalled to strengthen the American ine. As an old sergeant of his regiment put it, when referring to this incident, "If they hadn't caught Jim Smith when they did, we'd be sure going yet." He was commended for gallantry in action on this occasion, and on March 1st, 1899, was put in command on the Isle of Negros until the arrival of General Hughes. Later he was appointed Military Governor of Negros and commissioned Brigadier General. His next post was that of Insular Collector of Customs, and later he received the appointment which, as he says himself, was his highest ambition, that of member of the Supreme Court of the Philippines. Here he expected to remain and follow his natural bent. But Taft was looking for timber of the right caliber and he chose the General as a member of the Commission. It was with reluctance that he accepted this honor, yet he felt it was his duty to serve where his chief needed him, but he always pined for the bench. He was later appointed Vice-Governor, and, upon the retirement of Governor Ide, became Governor-General. This last honor he did not want. It was practically forced upon him. He undertook it with many misgivings and urged that some one else from among the members of the commission be chosen. He was finally induced by his friends to accept. For the last year he has been endeavoring to be relieved, but without success, and finally he sent in his resignation the first of the year to President Taft. It has not yet been accepted He was granted six months' leave and invited to Washington to talk it over. If Taft can talk him over he will come back. He has served faithfully and well and would be a severe loss to the administration, should he sever his connection at this time.

Governor-General Smith was ever ready to co-operate with American, foreign, and native enterprise in the islands along the lines of legitimate development, and for this reason alone, by his retirement at this time, the Philippines would lose a man whose influence is sorely needed.

W. CAMERON FORBES, ACTING GOVERNOR-GENERAL OF THE PHILIPPINES

The assumption of the duties of Executive upon the departure of Governor-General James Smith from the Philippines by Vice-Governor Forbes as Acting Governor-General, marks the advancement to that position, for the first time, of a business man. Heretofore the Executives were chosen from among the members of the bar, and it was natural that during the constructive period of legislative enactment this should be so. As evidence that it was the purpose of the Taft administration to have the commercial interests represented, Mr. Forbes was induced to take a hand in Philippine affairs, and, as secretary of Commerce and Police, he inaugurated many reforms and innovations designed to serve the best interests of the commercial community. In recognition of this work he was named Vice-Governor which placed him in line of promotion for the Governor-General's place. So that for the present he serves as Acting Governor-General and, if General Smith retires as he proposes to do, Mr. Forbes will succeed him.

W. Cameron Forbes was born in Milton, Mass., in 1870, and graduated at Harvard with the degree of A.B. After his graduation he associated himself with the firm of Messrs. Jackson & Curtis, of Boston, and later as auditor of the well-known firm of Messrs. Stone & Webster of that city, and one of the most prominent firms of the United States, having control as General Managers of many systems of electric railways, plants, and industrial enterprises. He became a member of the well-known firm of Messrs. J. M. Forbes & Co. of Boston in 1899, and his duties as official and director of many companies gave him a wide experience in financing and directing large undertakings.

It was in 1904 that Mr. Forbes was prevailed upon to give the Commission and the Philippines the benefit of his natural gifts and his wide experience in commercial matters. That body was short of a representative of the commercial interests. The result was the ineffectual coastwise shipping was overhauled and reorganized under Mr. Forbes' direction. Schedules were made and the shipping firms encouraged to maintain them by substantial government patronage. He carried into effect the plan to provide a system of railways throughout the country and to construct permanent roads. He solved the problem of maintenance and, through the Bureau of Public Works, made for permanency in all kinds of construction in the islands. The removal of strictures on the shipping in the port, the arrangement of the new port works and the construction of warehouses on the new-made ground for the reception of imports, and in a thousand ways Mr. Forbes urged better facilities for handling the shipping in the harbor. Then he took up the subject of irrigation. He recognized that the commerce of the country depended upon the development of the agricultural industry. He assiduously applied his best effort to interest his co-legislators in this enterprise with the result that a well-defined scheme is now under way.

He has many other plans for the improvement of trade conditions, and, during his term, it is reasonable to expect the greatest degree of encouragement in every line of commerce and industry.

As a citizen, Mr. Forbes has been identified in every movement tending to help the Philippines get a hearing abroad. He not only approves but digs down in his pocket when occasion requires. This application of a well developed public spirit has made Mr. Forbes a most popular official. And he is modest about what he has accomplished. Like General Smith, he is ever leaving the praise to others while he proceeds to accomplishment.

Mr. Forbes is the first bachelor to assume the duties of Governor-General. He is turning his 40th year and, in point of wealth, independently rich. A man of simple tastes, fond of outdoor exercise, he is a typical American gentleman of the old school. He is an official who will make many friends for the islands.

THE FAKUMEN RAILWAY QUESTION

(From our Own Correspondent)

Shanghai, April 30th, 1909.

The Fakumen Railway incident still engages the attention of China and Japan and continues to furnish the press with occasion for pointed references to Japan's unfriendly attitude in opposing China's development and blocking the execution of a British contract. Notwithstanding the dignified position of the British Government in refusing to listen to popular clamour and recognize in Japan's policy an infringement of the Open Door principle, the interests leagued with China persist in agitating the question.

This dispute has held public attention for a long time, and the arguments of both sides have been vented freely in the press and diplomatic circles. From a careful review of the facts it is, however, becoming more and more evident that China has overreached herself and that there is more behind this matter than an insignificant railway extension of 50 miles. In fact, the incident is beginning to savor of a carefully planned and skillfully carried out intrigue to embarrass Japan and foment a spirit of antagonism in Great Britain against a renewal of the alliance.

The Treaty of Portsmouth bound the signatory Powers "not to obstruct any general measures, common to all countries, which China may take for the development of commerce and industry in Manchuria," but Japan subsequently secured from China, in a secret Protocol to the Peking Agreement of 1905, the promise "not to construct, prior to the recovery (by China) of the (South Manchuria) Railway, any line in the neighborhood of, and parallel to, that Railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway."

China's rights, which were thus amply protected by the Portsmouth Treaty, were again placed in jeopardy by her own diplomats in the later agreement with Japan. With all her past bitter experiences to guide her, and confiding her interests in the hands of her most experienced officials, China blindly bound herself to another surrender of rights, and paved the way for future troubles.

One of her most skilled and astute diplomats, Tang Shao Yi, a Columbia graduate, attended the conferences with the Japanese Plenipotentiaries, leading up to the final signing of the Agreement with its secret protocol, and he was therefore in full possession of all the facts and conversant with all the points at issue. There appears to be no doubt that the full significance of this secret clause was appreciated by China, for it is part of the records of the discussions that its bearing on future railway construction in Manchuria was carefully considered. It is also recorded in the published reports of the American State Department that, when questioned by the American Minister at Peking about this self denying clause, Tang Shao Yi categorically denied its existence. Tang was subsequently appointed Governor of Mukden on the organization of Manchuria into a vice-royalty, and shortly afterwards initiated the secret negotiations

which terminated in the signing of the agreement with Lord French for the construction of the Fakumen extension of the Imperial Railways of North China, and with J. O. P. Bland acting for the British and Chinese Corporation for the loan. This work was therefore carefully planned and entered into on the initiative of one of the high Chinese officials thoroughly familiar with the stipulations of the secret clause, and the storm that would be provoked by an attempt to prove its practical application to the situation in Manchuria.

The singular fact inferred from this action on the part of H. E. Tang Shao Yi, which was a complete reversal of policy on the part of China, compels the belief that the step was taken with the express design of forcing Japan's hand and testing the strength of the Peking Agreement, for as the clause was secret, Japan would necessarily have to make its provisions public, in the event of any infraction of the terms on the part of China.

For some years past China has endeavored to recover some of the rights signed away by former inexperienced officials, and especially to regain control of her railways, and as far as possible construct future roads with her own capital. The Imperial Railways of North China, as its title indicates, is an enterprise controlled by the Imperial Chinese Government, with a British engineer in chief, imposed by the loan agreement of 1899. It is one of the most profitable railway enterprises in the world. The line is 600 miles long, and represents a total capital investment of $49,394,426 (Mexican), of which amount $27,600,000 (£2,500,000) was secured as a loan from British capitalists in 1899 at 5 per cent interest. The balance of the capital, $21,994,428, is held by the Imperial Chinese Government and native shareholders. The ratio of expenses to earnings in 1906 was 28 per cent, in 1907, 37 per cent, in 1908, 28 per cent. The receipts last year were $11,067,677, and expenses $3,075,567, leaving a credit balance of $7,992,110, which, added to the credit balance carried forward from the previous year of $6,658,763, made a total of $14,650,875 for expenditure. After paying the fourth installment on the loan and interest, Chinese shareholders and other general expenses, and applying $3,839,288 towards the construction of the Peking-Kalgan Railway, there was still a credit balance of $6,296,215. In fact the surplus profits of this line are not only sufficient to carry on the construction of the Kalgan railway, but have also been pledged to guarantee the interest on other railway loans.

Here is a road which not only provides for all its own improvements, branches, and all charges, but is actually building another 200 mile road, and also the rolling stock for various native roads in its car shops, and guaranteeing the interest on loans to construct others, all under Chinese supervision and free from foreign interference. The actual expenditure on capital account for the existing 600 miles of road is a little over $80,000 Mexican per mile, and at this high rate an extension of 50 miles costing $4,000,000 could readily be undertaken out of the present credit balance of the road, especially as the work would take two years to complete, and the expenditure spread out accordingly. Yet, despite the existing bitter opposition to unnecessary foreign loans, and the undoubted financial and engineering ability of the Imperial Railways of North China to carry on the work under its own supervision, it was considered necessary to build this little insignificant 50-mile extension to reverse the policy of the country and resort to a foreign loan, placed in Great Britain and its construction contracted for by a British company.

There is only one interpretation to this enigma. China, in her defenseless condition, could not successfully disregard Japan's opposition to the secret clause, and so adroitly laid her plans to secure powerful foreign assistance to carry her point, and ascertain Japan's interpretation of its meaning, and her future intentions. As British capital was already interested in the loan of the I. R. N. C. it was hoped that this fact in addition to the influence of the alliance would result in Japan consenting to the execution of the contract.

The remarkable cleverness and diplomacy of Tang Shao Yi in enlisting this aid, by contracting with Lord French for the construction of the road, and with the British and Chinese Corporation for the loan, before Japan learned of his intentions, is only surpassed by the blind acquiescence in the scheme by the general public, and the acceptance of China's side of the dispute, because British interests were involved. British and American diplomats have also been adroitly led to report favorably on China's rights in the dispute, and the press generally has followed the same course.

The refusal of the British Government to interpret Japan's attitude as threatening the doctrine of equal opportunities, and interfering with China's development has perplexed the leading British organs interested in Chinese affairs. To the disinterested observer, however, this position seems entirely consistent and comprehensible. In addition to a suspicion that the Fakumen scheme was "a put up job" to discredit Japan, China has permitted the world to gain an insight into her future intentions to prolong the railway northwards to Tsitsihar and thence on to Aigun, with a branch to Kwang-cheng-tse to connect with the Kirin Road. While Japan might generously waive her interpretation of the secret protocol and permit the extension to Fakumen, without it resulting in any material damage to the interests of the South Manchuria Railway, she would naturally view with deep concern the establishment of a principle which would ultimately menace her present strategic and commercial advantage in Manchuria. So it is quite conceivable that the fair-minded, conservative statesmen at the head of affairs in London, would extend their moral support to Japan in this question, and cement the alliance for powerful political reasons, rather than be made the instrument of Chinese political intrigues, or be guided by an appeal to protect a contract which was so evidently negotiated by China, for the set purpose of creating discord in the harmonious relations existing between the Allies.

China has proposed to submit this matter along with other issues to the Hague for settlement, but Japan has refused on the grounds that it can be settled out of court through regular diplomatic channels. This would indicate that Japan is willing to compromise and permit the extension to Fakumen at least. China's rights to develop her own territory are indisputable, but in this instance China has again hampered her liberty of action by signing ambiguous agreements. The wording of the document leaves its construction open to argument, and until a compromise is effected on the definite meaning of "in the neighborhood of, or parallel to, and branches detrimental to the Japanese road," both sides can place a wide construction on their meaning. The best friends of China must acknowledge that she has entered the agreement with her eyes open, and fully realizing the evils that could arise from a selfish interpretation of this self denying clause. The censure if any is not applicable to Japan, but to the high Chinese officials who having past experiences nimind, allowed themselves to set their seal to such an agreement.

Japan has the upper hand and is in the position to act generously, but the tactics pursued by China in bringing this issue to the front, and in refusing to give Japan credit for any honorable intentions, must result in her maintaining her present position. China's persistance in magnifying trifling incidents into matters of grave international importance, coupled with the campaign of vituperation indulged in by the native press, will not tend to mend matters.

Other powers have placed their own construction on the wording of treaties with China, and have insisted on the acceptance of their terms. Here is a matter in which Japan can with dignity maintain her position, and it is difficult to see how any other power can consistently reproach her for insisting on the terms of the secret agreement. In the event of a failure to secure an amicable settlement, it is perplexing to see how China can reap any advantage from the bad feeling engendered by her attitude.

G. B. R.

MANILA HARBOR

The favorable report of Captain Austin of the Minnesota on the new harbor at Manila, after he had swung at anchor there and taken advantage of his opportunity to make a thorough investigation, has done much to counteract the misleading reports current in shipping circles. In addition to this, the careful investigation of the harbor by a part of shipping men, pressmen and officials under the direction of Editor Taylor of the *Manila Bulletin*, resulted in satisfying all interests that there is more water there than indicated on the latest charts.

The result of the investigation also led to certain recommendations that are being carefully considered by the authorities and if approved will mean the closing of the gap and the better regulation of berthing vessels. The closing of the gap will give more protected space for anchorage during the monsoon season and the expenditure of a small sum would increase the depth and width of the channel round the end of the breakwater so as to accommodate any vessel. Then the regulations of the buoys under government control so that vessels could easily find their respective berths without confusion and in the order of first come first served, would be greatly appreciated.

Every effort is being made to meet every requirement of the shipping trade at Manila and the authorities have always encouraged foreign masters to register their criticisms so as to have the advantage of their viewpoint, since they are the men in the best position to appreciate any undesirable condition or unnecessary restriction.

COPPER MINING IN INDIA

The Semi-Independent State of Sikkim, situated just beyond Darjeeling and between that Hill Station and Thibet, is not only noted for its grand scenery, but is, owing to the enterprise of Messrs. Burn & Co., Ltd., of Calcutta, likely soon to be a factor in the copper production of the East.

A large number of copper mines have been located and some of them systematically developed for the last eighteen months with most favourable results, under the direction of Mr Charles Wilkinson, Mining Engineer.

The ore occurs in the form of copper sulphides, both in lodes and bedded deposits, and although these are not phenomenally rich, they are highly payable from a commercial point of view, averaging from 5 per cent. to 10 per cent. of copper throughout.

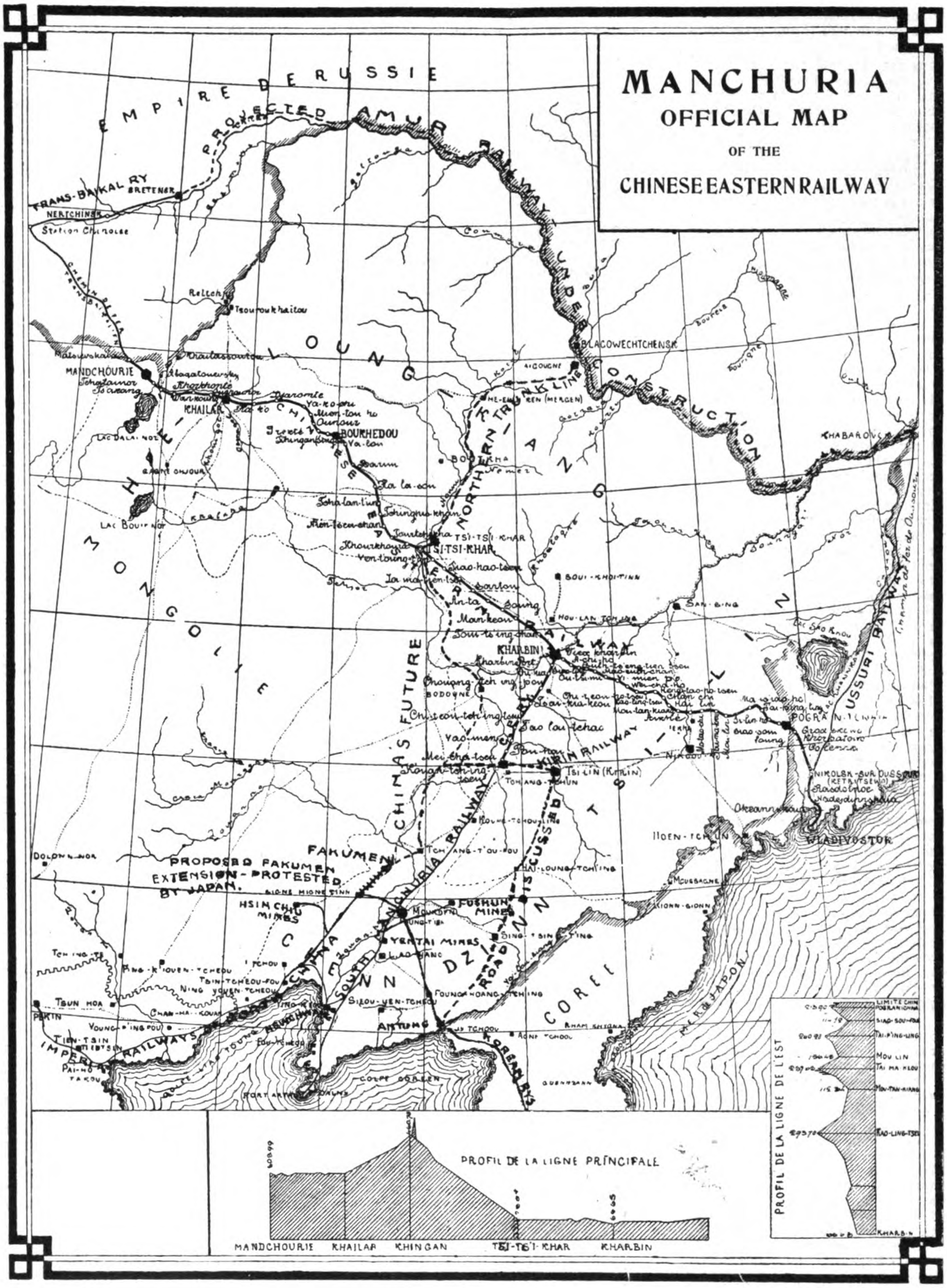
The copper ores are found in what is known in Indian Geology as the Daling beds of slates, and schists.

At Bhotang Mine, systematic development has disclosed several payable lodes, and the bottom of the winze 400 feet below the outcrops on the hill is now on a payable sulphide lode of 4 to 5 ft. in thickness.

Another rich sulphide lode, Dik Chu, has been traced for several hundred feet, and a tunnel driven on the strike of the lode into the hill is in payable mineral for the whole distance.

Altogether, close on 65 acres have been taken up, making a total of close on 8,000 acres which will be brought up to 32 square miles of country, in every half square of which is a copper deposit or lode, all held under the Indian Government regulations in Leases and Prospecting Areas.

Messrs. Burn & Co. have secured rights for water power, timber for charcoal making, and mining and building on most favourable terms. The labour is cheap and most efficient; the miners are mostly of the Mungar caste, who have for generations worked the surface for copper.—*Capital.*



THE STRUGGLE FOR AN EMPIRE

The above map illustrates present railway situation and the struggle for the commercial and political supremacy on the part of Russia and Japan, and China's plan to regain her lost advantages by the projected construction of the Fakumen branch, and its contemplated extension northwards to Tsitsihar and the frontier at Aigun.

The Treaty of Portsmouth, which gave the South Manchuria Railway to Japan, also prohibited Russia from employing the Chinese Eastern Railway for the transport of troops or other strategic purposes In the event of future hostilities, Japan could quickly seize the main line of Russian communication, and isolate Vladivostok and Eastern Siberia. Against this contingency, Russia is now building the Amur Railway, entirely within her own bounda-

ries, and far removed from the possibility of Japanese attack, which will insure open communication with the Pacific.

The Russians are claiming the right of administration in the towns along the mainline of the Chinese Eastern Railway, in accordance with the terms of the standard text of the French version of the original agreement for the construction of the road, which is being bitterly opposed by China, who claims that no such authority was included in the agreement, and it fails to appear in their copies of the document. China has the moral support of all other nations with the exception of Japan in her side of the question. As the agreement in question controls the status of the South Manchuria Railway, Japan will derive the same advantages in her zones if Russia's contention is accepted. This means that China has signed away her own rights within her own territory, thus creating an empire within an empire, leading to an eventual loss of her sovereign rights in Manchuria.

The map also clearly reveals the underlying motives of China and Japan in the much discussed Fakumen Railway dispute. Here again China bound herself by an ambiguous secret protocol with Japan not to construct any railway in the neighborhood of, or parallel to, the South Manchuria Railway which would compete with it. As the latter road is the only tangible asset secured by Japan as a result of her victory over Russia, she is zealously guarding its interests. After China had secretly signed the above article in the protocol, she entered into negotiations with a British firm of Contractors to build the Fakumen extension, and with another powerful British financial corporation to supply the funds, well knowing that the construction would be opposed by Japan as a violation of the agreement. In the light of subsequent events it is quite clear that this move was made only after mature deliberation on the part of China, as the idea emanated from the mind of H. E. Tang Shao-yi, who was one of the Chinese officials present at the discussion which led to the signing of the protocol. By enlisting British support and co-operation, the purpose was undoubtedly to influence Japan's consent by pressure from her ally. Japan's opposition is not based on the actual competition which the short extension would create for the South Manchuria Railway, but on the purpose of China to further extend the road northwards, to Tsitsihar and Aigun, with a contemplated branch to Kwang-cheng-tse or Changchun to connect with the Kirin Railway. To cede the present point to China, and establish the principle, would ultimately lead to the more important extension northwards, which would not only seriously compete with the Japanese Railway, but would constitute a standing strategic menace in the event of future hostilities. As China has already signed away her rights—although worded ambiguously—Japan is holding her to her agreement, as a protection against future complications.

On the other hand China maintains that although her representatives signed the protocol, there was never any intention on their part that she would be prohibited from constructing further railways to develop her own country. Both sides appear to have considerable just grounds for their attitude, for a glance at the map is sufficient to see that the real Chinese scheme will seriously imperil Japan's interests in Manchuria, while the natural development of her territory and free communication with her Manchurian capitals is essential to China's progress. China has proposed to submit her troubles with Japan to the Hague, but Japan has refused, stating that the matter can be settled diplomatically.

The situation is one which, if allowed to continue, must sooner or later lead to strained relations. The natural solution of both questions is for China to purchase the Russian and Japanese roads, at whatever cost, and so regain control of her territory. Russia has been approached on the question, and has refused to consider it, unless China pays her price with money raised in her own country, without resorting to a foreign loan, which means that China in her present impoverished condition cannot comply. Japan is making vast expenditures to improve the South Manchurian Line and the Fushun Mines, and would not entertain any proposal for relinquishing her rights unless handsomely reimbursed, on the same lines as Russia—with money raised in China. The resort to a foreign loan would simply mean that other nations would gain the prestige in China lost by either Russia or Japan. Under the present financial system, China is too poor to ever hope to purchase her lost rights, and her statesmen are daily inventing new schemes on which to spend the revenues. If the revenues were honestly administered, there is no doubt that China could save herself by her own efforts. The millions in treasure left by the late Empress Dowager could be put to no better use than repurchasing the rights which her ministers and advisers so freely gave away.

—G. B. R.

Agreement between the Chinese Government and the Russo-Chinese Bank for the Construction and Management of the Chinese Eastern Railway.

Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. Agreement signed 8th September, 1896.

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns on the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, *i. e.*, 5 Russian feet, equivalent to 42½ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payments to the proprietors at market rates, either in one payment or as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation.

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorizing them to prooced. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans, and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of ⅓ of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i. e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or likin barriers. But if transit duty be not paid they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profit made by the line shall belong to the Company solely. Any loss must likewise be borne by it: the Chinese Government cannot be responsible. After eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced the Company will pay the Chinese Government five million Treasury taels.

THE GREAT ADMINISTRATION BUILDING OF THE C. E. RAILWAY.

HARBIN: THE AFTERMATH OF RUSSIA'S ADVENTURE

(Continued from page 417.)

following the crooked Amur River in the endeavor to seek an outlet to the sea. At the same time it created a new line of attack and approach to the goal at Peking, and the ultimate absorption of Korea. In the spring of 1897 the work of construction was commenced, and in the same year the city of Harbin was founded and made the administrative and working headquarters of the new enterprise. Harbin, the railway center of construction, was the ideal location for the concentration of material and forces, and was to be, in addition, the strategic center of Russia's new empire, and but for the unexpected war with Japan her purpose would have been crowned with success. From armed guards and administrative control to permanent occupation and annexation was only a short and easy step with decrepit old China, and Harbin was to be the center of the web which would enmesh the Three Eastern Provinces. From the new base Russia was to dominate Far Eastern trade, and Harbin was to become the Moscow of Asia, the Minneapolis of the Far East, and the Chicago of the Orient, and the products of her mills would be distributed by the railways radiating from the new city, and the network of waterways connecting with the Sungari.

So the city was located on the banks of the Sungari River at a point where the railway was to cross the stream, and where the connection southwards to Dalny was afterwards to be made. Situated 350 miles west of Vladivostok, and 600 miles north of Dalny, it was in the geographical center of Manchuria. When work on the railway at the eastern ánd western ends was commenced, vast stores of material were shipped by river craft up the Sungari to the new town so that work could also proceed from the center.

According to the most authoritative reports, before this there was no native settlement in this vicinity, so that Harbin, as it stands to-day, is a purely Russian product laid out by the railway engineers. The original town, or old town, is located three miles from the present railway depot: Pristan, or the river town, is located on the side of the railway bordering on the river, and is the present commercial town. Then there is the official city or district in close proximity to the Railway station, where all the public buildings, offices, hotels, etc., are located. There is also a purely Chinese town about four miles from the official district, which is the headquarters of the present Taotai.

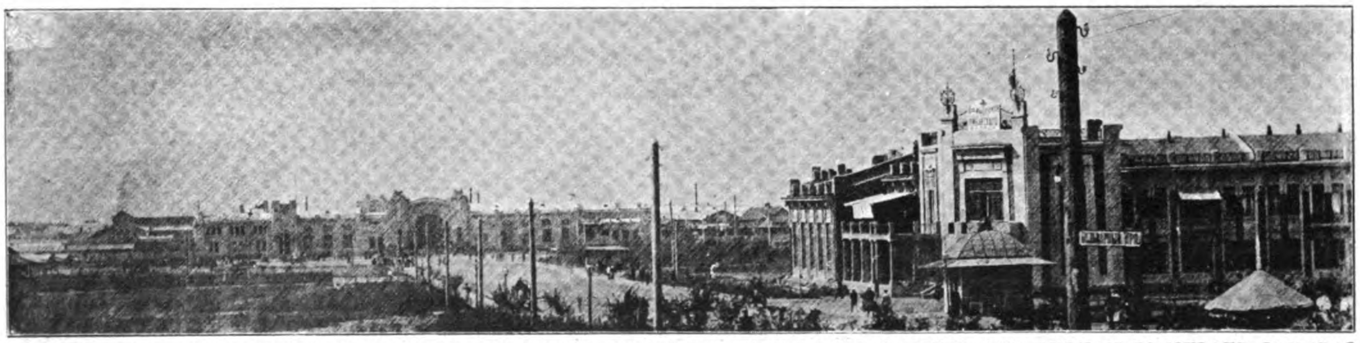
Here, in the short space of ten years, Russia has created a city which at one time promised to be the greatest manufacturing center of Asia. Here a metropolis was planned and built up with official approval and revenue, and every inducement was held out to the Russian trader and manufacturer to locate. Wide streets were laid out and paved, electric lights installed, fine large official buildings, railway clubs, hotels and schools were erected, immense car and machine shops equipped, and every bait offered the confiding Russian capitalists to purchase lots and cast their fortunes in with the new adventure. Laborers flocked from all parts of Siberia and Russia, mechanics and their families were sent out by the hundreds, on steamers from the Black Sea. Regiments of Cossacks and Railway Guards were dispatched to the new military center to police the line and work of construction, and repulse the attacks of the Hunghutzes. In their wake came the demi-monde, music hall artistes, and the horde of adventurers who follow an army and flock to new pastures. The town rapidly outgrew its original delimitations, and further land was added to meet the expansion. The rich Siberian Jews, attracted by the opportunities for quick and handsome profits, lost no time in establishing themselves in the new city. Land increased rapidly in value, houses were at a premium, and excessive rents and cost of living came as a natural sequence.

The old town was the first to be thrown open by the Railway Company for the purchase of land by private parties, at a rate of a little over one cent gold per square foot, but the price was soon raised to three cents per foot and over; the official town was then laid out and immense building plans entered into, while in the river town the prices soared to over 17 cents gold per square foot, and many large and substantial brick buildings were erected. Within a year from the time this section asw opened to the public, it is estimated that over $5,000,000 gold was expended in building operations by the public. Additions were laid out adjoining the administrative town, and the land was immediately taken up by speculators and resold at prices as high as $5.00 gold per square foot. Nearly 3,000,000 roubles were received by the Railway Company from the sales of lands to private parties in a couple of years, all secured on an eighty-six years' lease.

Naturally capital was poured into the new city by the Jews, and many Chinese also furnished considerable money to finance new undertakings and erect buildings. With the rapid progress of construction calling for an army of skilled and unskilled labor, coupled with the demand for railway work, and the constant increase in the military and official element, the boom progressed and prospered. Theaters, music halls, and brothels abounded. Above all else the easy-going Russian loves his pleasure, and this side of his nature was amply catered to in the heyday of Harbin's career.

Then followed the industrial boom. With a country rich in wheat and cereals, minerals and timber, flour mills, mines and saw mills were projected and erected. Breweries followed, vodka factories for the soldiers, meat packing plants and other large schemes were promoted. Prosperity was in the air. Everybody seemed to have money, and it was spent like water. Easy come, easy go. The Government was rich, and St. Petersburg was far away, and the high officials were too preoccupied with getting their share of the official "squeeze" to pay heed to the petty "graft" of the lesser employees, and the saturnalia whirled on with no thought of the morrow, or of the day of reckoning. It was a good thing, and it had to be carefully nursed and preserved. Russia for the Russians, and Manchuria for the elect, and out with the foreigners

Harbin was Russian to the core. Treaty stipulations and other foreign rights were not known, or were they known, were as contemptuously ignored. It was as distinctly a Russian city as though located on the Volga. The same obnoxious laws were implanted and enforced. Foreigners were practically excluded or only permitted to remain on sufferance. Passports were necessary to visit or remain in the city, and the same irritating domiciliary police regulations enforced in Russia were placed in operation. None but Russians or

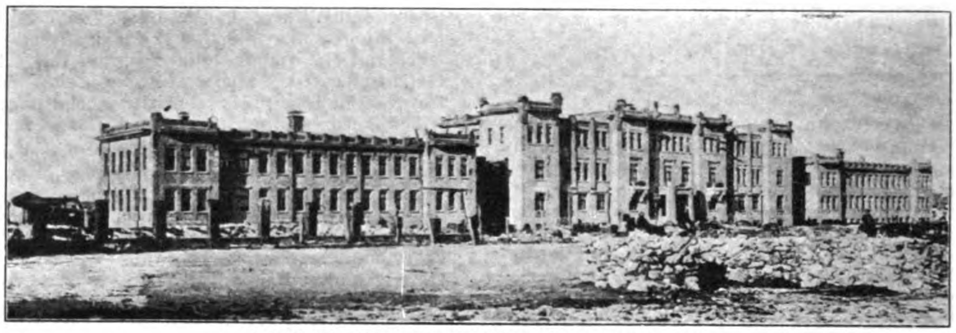


HARBIN: THE MAIN STREET LEADING TO THE RAILWAY STATION. THE OFFICIAL HOTEL AND RUSSIAN CONSULATE GENERAL TO THE RIGHT.

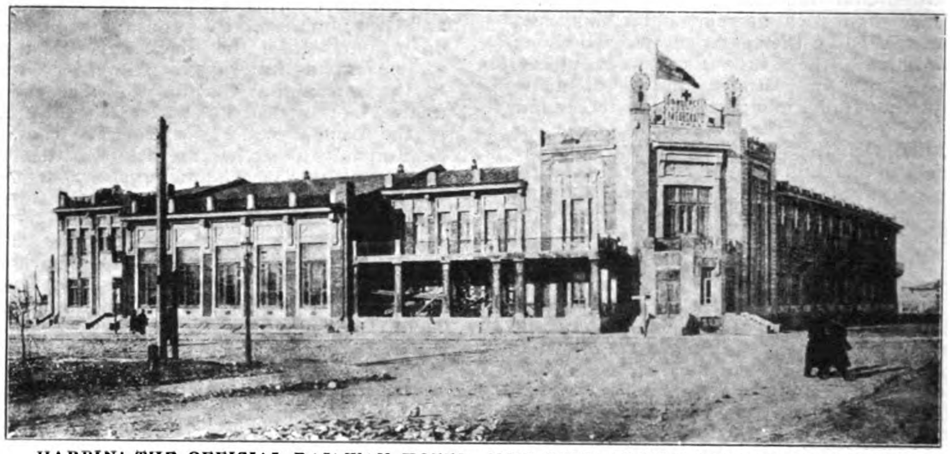
Chinese could hold land, construct buildings or engage in any permanent business. The foreigner could, however, by waiving all his rights, be allowed to establish himself in certain lines of trade. The beneficent Railway Government would go so far as to grant him certain privileges, provided he signed a document binding himself to faithfully observe all the obnoxious Russian regulations, and failing in which, at any time, his property could be forfeited, and all his buildings demolished at the will of the Railway Manager. And, furthermore, the fortunate foreigner who so far forgot his self-respect to submit to the foregoing, was further requested to sign another document exempting the Railway management from any claim for damages arising from such a situation, and the Consul of the nation to which he belonged was expected to countersign such a surrender of rights before he could start business. No white man could tolerate such impositions on his rights, and no consul would for a moment dare to witness or indorse such a document, which recognized absolute Russian jurisdiction. Is it any wonder that Russia had the field all to herself, and no foreigner attempted to establish himself in business in the new Moscow. Not only were the extra territoriality rights of foreigners in other parts of China studiously ignored, but the Chinese themselves were denied the jurisdiction of their own officials. "Exclusive and absolute administration of the railway lands" was interpreted in the sense that China had abandoned all rights and jurisdiction in her own country, and foreigners were to conform to the laws of Russia, in the heart of Manchuria. All the land suitable for foreign settlement for miles around was appropriated and included in the railway zone to prevent foreign interests from gaining a foothold in the district. During the Boxer troubles, a further extension of the Railway zone was effected. In 1901 the population had grown to 12,000 Russians, and increased to 60,000 by the autumn of 1903, exclusive of soldiers. The Railway employees alone numbered over 11,000. The Chinese population was about 40,000 living in a separate town. The state of affairs in Harbin at this time can be better appreciated by the fact that out of a total of 400 Japanese inhabitants about 350 were women, while of the entire Russian population of 60,000 over 40 per cent. or 24,000 were females.

Then came the war. The immense armies of the Czar, transported across Siberia, came to a halt at Harbin and were here encamped and forwarded on to the front as their time came. Here was the real military headquarters, here was the base, in which the commissariat, and quartermaster's stores were stacked up for reshipment further south. For the Russian the war began when he left Harbin for the front and ended when he returned. Here the officers left their families, some wives, some mistresses, and here the camp follower halted and went no further, here the gamblers and sharpers plucked the easy going and good natured soldier, and the commercial adventurer divided the loot with the mercenary official. To Harbin swarmed the women, who made it their abode, bringing with them the luxuries of Paris and the life and atmosphere of the boulevards. Theaters multiplied, cafés chantants were in full blast, drinking saloons and pleasure resorts abounded. No less than 26 music halls catered to the pleasures of the soldiers, running day and night

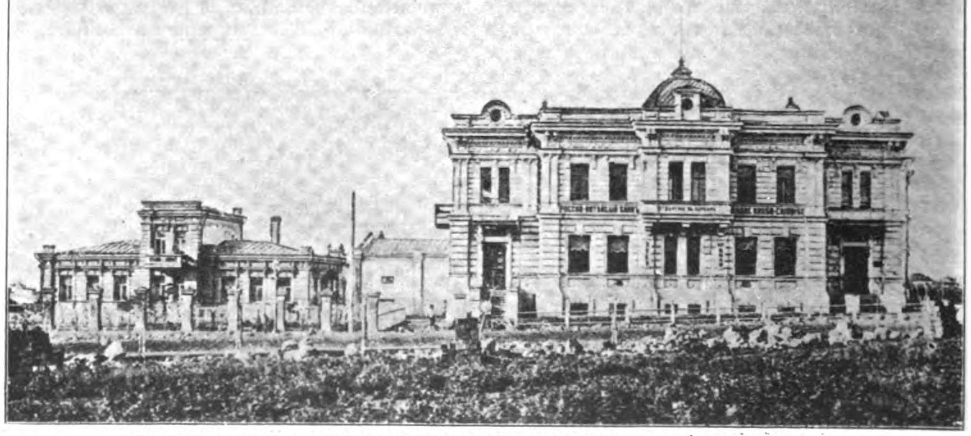
HARBIN: THE RAILWAY STATION.



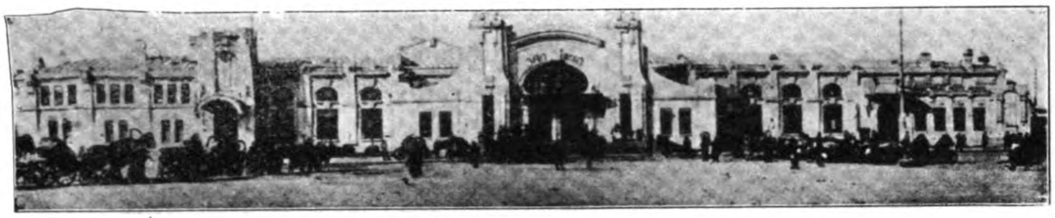
HARBIN: THE ADMINISTRATION BUILDING.



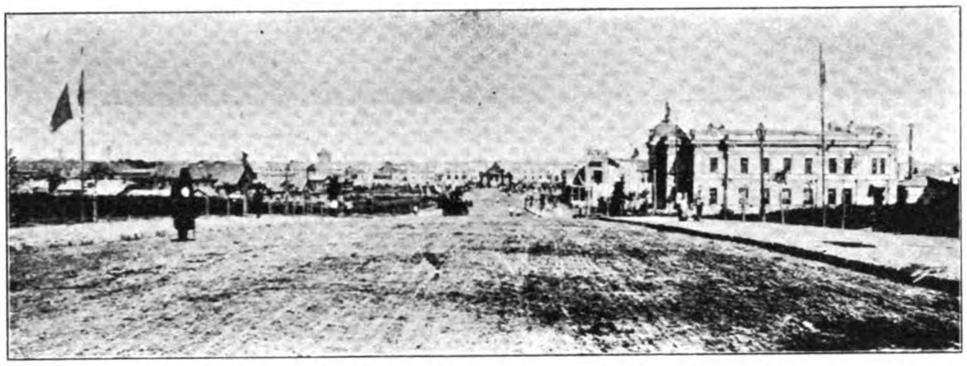
HARBIN: THE OFFICIAL RAILWAY HOTEL, NOW USED AS THE RUSSIAN CONSULATE GENERAL.



HARBIN: THE RUSSO-CHINESE BANK AND MANAGER'S RESIDENCE.

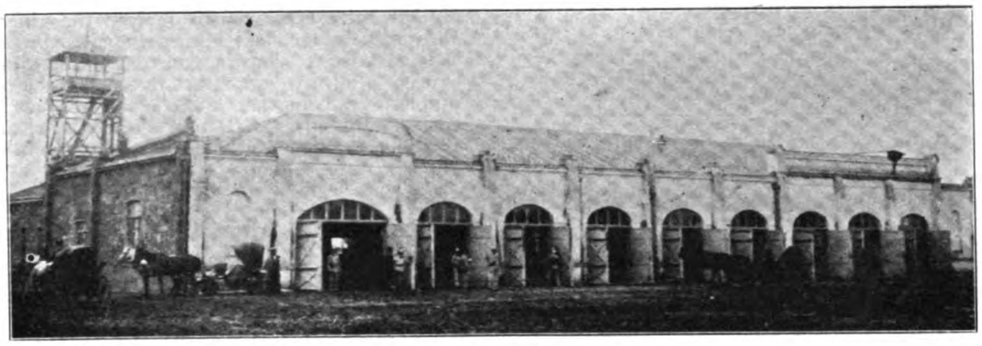


HARBIN: FRONT VIEW OF RAILWAY DEPOT

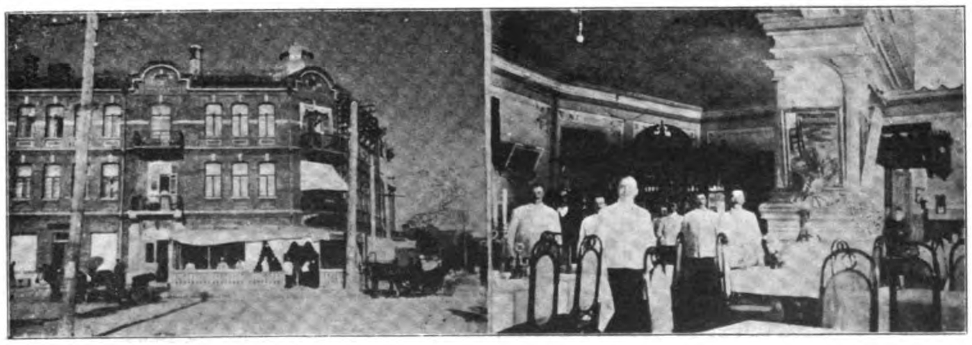


HARBIN: STREET TO RAILWAY STATION. THE RUSSO-CHINESE BANK TO THE RIGHT

HARBIN: COMMERCIAL STREET, PRISTAN



HARBIN: FIRE DEPARTMENT



HARBIN: THE GRAND HOTEL DU COMMERCE

without pause. The pace was swift, life was short, and extravagance and recklessness the order of the day. Champagne flowed like water. Magnums took the place of the ordinary pint or quart bottles. They cost more and the money would go quicker. Officers ordered to the front squandered their savings or year's pay in one last wild orgy, drinking the cup of pleasure to the last drop, and those lucky enough to return started in to make up for the lost time and hardships at the front.

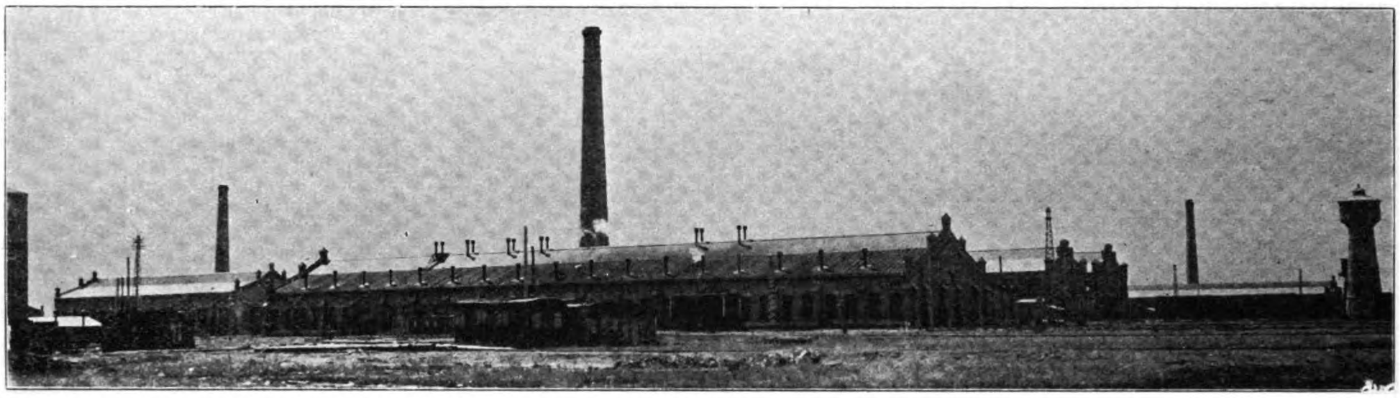
A rough, lawless element entered with the army, and made life unsafe despite the presence of the disciplined soldiers.

Houses were at a premium, lands rose still higher in value, and fortunes were made in real estate and building transactions. Chinese and Jewish money lenders flourished, jewelry dealers were reaping a glorious harvest, and fashionable drygoods stores carrying the latest and most expensive stocks of feminine wear did a thriving trade.

In the midst of the whirl, the industrial boom war born. Flour was expensive. The railway from Russia was choked with troops and urgent war material and the Japanese cruisers made it difficult to procure supplies from the sea, so with a country rich in wheat, flouring mills offered a solution, and the money for their erection was readily forthcoming. As long as the army remained the market was assured and large profits possible. It is calculated that 85 per cent of the fodder and provisions supplied were of local production. No thought seemed to be given to a return to normal conditions nor it appears was any attempt made to secure a market for the by products. The investment was made on the demand created by the army, and shareholders seemed to labor under the impression that the abnormal conditions would obtain indefinitely. Breweries, four of them were hastily erected; vodka distilleries, eight were placed in operation; meat packing establishments, brick making plants, saw-mills, a glass factory and other industries were rapidly financed and carried through. Profits were enormous, and expenses were saddled on the enterprises in accordance. High salaried Director Generals, Directors, Managers, Superintendents, and a host of sinecures were created and fastened on the companies before the real practical head of the concerned was reached. It is stated the administrative cost of the milling companies averaged 37 per cent of the total. Everything was lovely, and as long as the boom lasted, no one cared to look ahead for the hard times coming.

The fever of making the city a great manufacturing center, a Moscow in Asia, possessed the railway management, and every system of promotion and protection that could be devised to increase its growth along these lines was energetically encouraged. The administrative city was planned on a grand scale and some of the finest buildings in the East erected. Over 30,000,000 roubles went into official edifices. The great Administration headquarters, housing all the offices of the Railway, three stories in height, with a floor space of over 4 acres, was built at a cost of over 1,500,000 roubles. The railway shops were designed on a liberal scale, and equipped at a cost of over 2,500,000 roubles, hospitals costing 700,000 roubles, railway club house, 375,000 roubles, railway or official hotel, 165,000 roubles, and nearly a million in schools. Commercial High Schools, a Technical School, and several minor schools were constructed, and last but not least the handsome stone edifice of the Bank, the father of the entire scheme. In addition, the long rows of brick dwellings, barracks, officers' houses, the fine residence of the Commanding General, the Headquarters staff of the Amur, the unique architectural freak of a railway station, hotels, churches, synagogues, private houses, the solid looking and attractive department stores, and the tall chimneys of the mills, electric light plant and the car shops, gave the town a truly up to date business-like appearance.

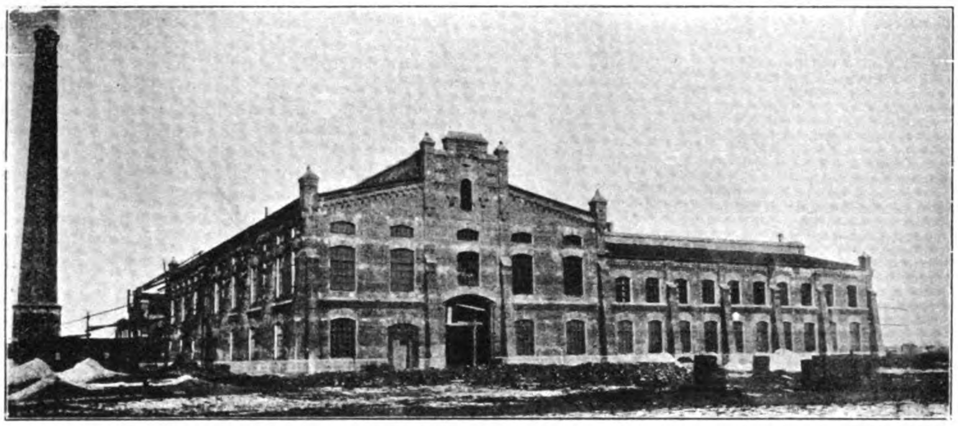
In addition to the great traffic of the railway, the Sungari River was at this time a busy artery of trade. From Harbin to the Amur River good sized river steamers carried on an immense traffic. Steamers loaded with large



RAILWAY CAR SHOPS, HARBIN

cargoes, and towing a line of laden barges, dumped their freight out on the banks of the Sungari at Harbin and contributed to the general prosperity. Lumber from the Amur, and miscellaneous stores from Vladivostok and the river ports were strewn along the banks, so that the appearance was similar to the beach at Nome during the gold rush. From Harbin to Harborovfsk at the mouth of the Ussuri River on the Amur, the trip by steamer occupied 5 days, and here connections were made with the Ussuri Railway for Vladivostok. The Chinese Eastern Railway Company and the Amur Steamship Company kept a large fleet of the light draft, wood burning, stern wheel river steamers at work carrying freight and passengers between the two points, the former at an average charge of $4.00 gold per ton.

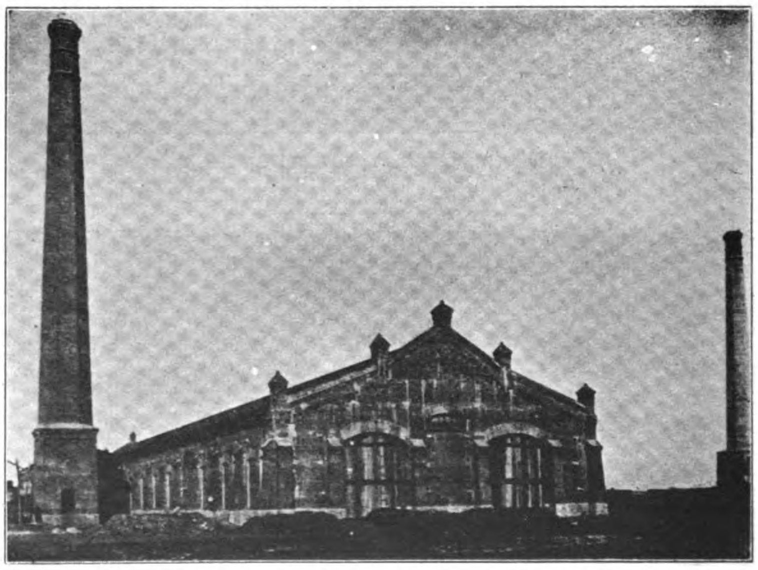
CHINESE EASTERN RAILWAY, MACHINE SHOPS, HARBIN



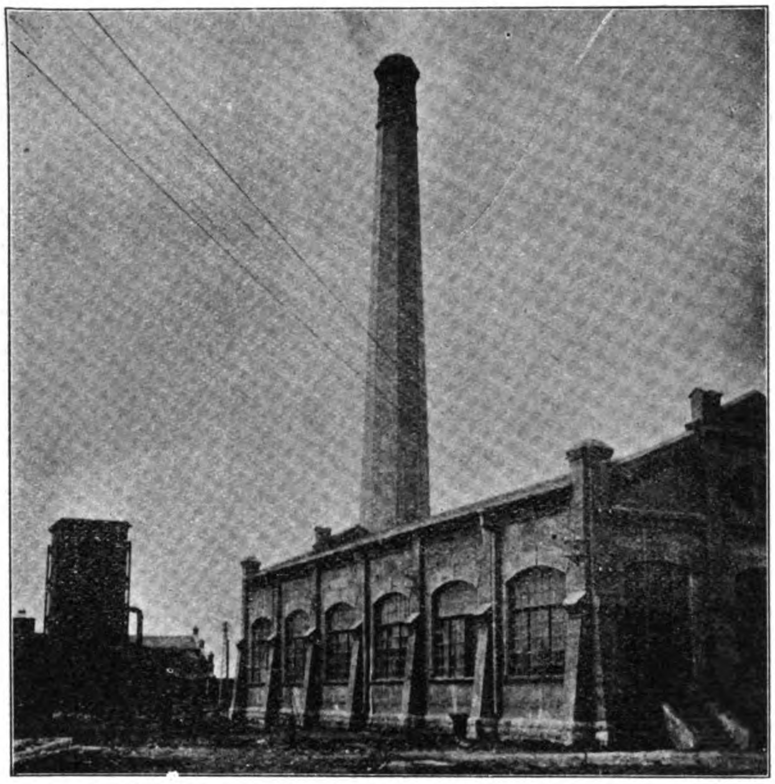
RAILWAY SHOPS AT HARBIN

The volume of traffic of the combined railway and steamships was immense, and it was almost impossible to handle the freight and properly store it. Vast piles of freight were dumped at convenient points. The streets of the town were choked with carriages, automobiles appeared, and an electric tramway company was organized to connect the different sections of the sprawling metropolis, and on all sides blocking traffic was the ever present clumsy Manchurian cart, with its five to ten draft animals.

And behind all this whirligig of pleasure, vice, war, and industry stood the Russo-Chinese Bank, the magician that had waved the wand and brought it all about Housed in its fine structure of stone, having its own heating plant and electric lights, erected at a cost of over 200,000 roubles, the Bank was the center, the hub around which Harbin revolved. Making no loans on realty, the management confined its efforts to advancing capital for current substantial business, and extending credits to Chinese merchants purchasing stocks of Russian goods, in addition to the regular exchange business. The results were profitable. Exclusive of purely government and railway business, the daily transactions exceeded 500,000 roubles just prior to the war, and this must have been increased owing to the swollen volume of trade. Cotton goods, sugar and other Russian products were thus introduced into the Manchurian markets. Imported free of duty through Vladivostok, favored with special rates on the railway and long credits by the Bank, Russian goods threatened for a while to secure a firm foothold. Encouragement of all kinds was given to the Chinese and Russian merchants, but to no outsiders. Harbin was to be the entrepot for Russian trade in the East, and the Open Door was only a dream of foreign diplomats that did not embrace Northern Manchuria. Millions were necessary to develop the scheme and millions were lavishly expended to further the adventure. Russia poured into her Manchuria Railway schemes over 300,000,000 roubles, and another 250,000,000 roubles in erecting the cities of Dalny, Port Arthur, and Harbin together with the fortifications and other



MACHINE SHOPS OF THE C. E. RY. AT HARBIN

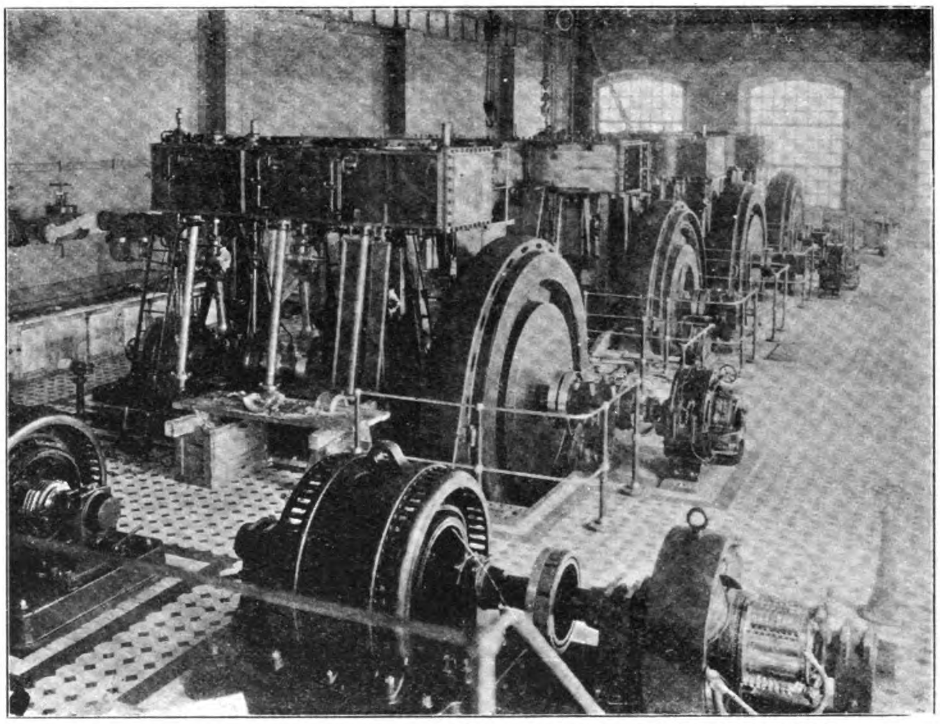


ELECTRIC LIGHT AND POWER STATION, HARBIN

permanent improvements. How much of this vast sum was actually expended no one will ever know. When the time came after the war for auditing the accounts, a convenient fire destroyed the building containing all the records, so the rendered figures had to suffice without comment.

The Treaty of Portsmouth came as a surprise to Harbin. Another few months and the tables would have been turned and the dreams of Empire realized. For Harbin merchants it was difficult to realize that the end had come, and as the aftermath set in and the soldiers returned to their homes and business began to decline, they still cherished hopes of a bright commercial future. The evacuation proceeded slowly. The limited facilities of the railway prevented a rapid homeward movement, so for a long while after the termination of hostilities, Harbin was still an armed camp. The enormous volume of business continued, and war prices prevailed. The large bodies of troops, freighted to Russia, seemed to make little impression on the merchants of Harbin. Thousands still remained, and the merchants refused to believe that the Government was earnest in the evacuation, and failed to realize the significance of the steady decrease. Stocks were increased, and the market overloaded. Sales, however, continued to diminish, as the soldiers gradually departed on their long journey, until only 50,000 remained of the vast army. The adventurers and harpies decamped taking with them the choice pickings of the harvest, leaving the hulks for the established merchant. It gradually dawned on even the most sanguine that conditions had changed, but they were unable to quit, as their capital was tied up in large stocks of merchandise and they had to hold on to recoup. No systematic or determined effort had been made by the Russian merchants to secure the native trade, despite the efforts of the Banks and the authorities to encourage and assist this movement. It was much easier and more profitable to cater to the good-natured, pleasure-loving, spendthrift soldier, than to get out and build up a trade with the economical and impoverished native. The Bank and the Railway whose future prospects and success depended on solid native trade, catered to this element, but with only nominal success. Russian kerosene, oils, matches, sugar, cotton goods, and cheap novelties were the only items of any importance dealt in. The purchasing power of the native was small, and Northern Manchuria is sparsely settled, and the market even for these necessities was limited. So with the eventual withdrawal of the Russian army, and the departure of the swarms of adventurers, camp followers and women, the merchants were face to face with the worst that could befall them—a return to normal times, and no market. The best customers for the flour mills, the breweries, and vodka factories were gone. The natives prefer their own crudely ground coarse flour, they don't drink beer or vodka, so the main industries of the city found no market for their output. The theaters, bereft of their patrons, closed; the music halls followed, and with the departure of the extravagant female spenders, the jewellers and department stores lost their best paying trade. Houses that were at a premium shortly before were vacated, new tenants came not, and a decline in real estate value followed. The costly block of stores, constructed in the center of the town for the largest Moscow merchants remained unoccupied. The brick factories and saw mills closed for lack of business. No one wanted to build. The glass factory suspended operation. The flour mills were forced to close down. One brewery remained at work. The hotels were emptied of their patrons. The large official hotel was converted into the offices of the Russian Consulate General. And so Harbin at last came to a realization of the exact state of affairs.

The town to-day presents an appearance of premature decay. Grass grows in the streets, no smoke issues from the tall chimneys of the mills. The large and costly stocked department stores open for the day and only a casual customer appears. Theaters have closed. Only one or two cafés chantants invite the midnight pleasure seeker, in place of the previous twenty-six. The houses are out of repair and the plaster ornamentation of many of the large buildings has fallen away disclosing the naked lath, revealing the fact that the buildings in part were only imitation stone. The town is existing on the expenditures of the railway. The salaries of the employees maintain the few stores, and the awarding of a contract for supplies is eagerly anticipated by the merchants. The railways and the Bank are making strenuous



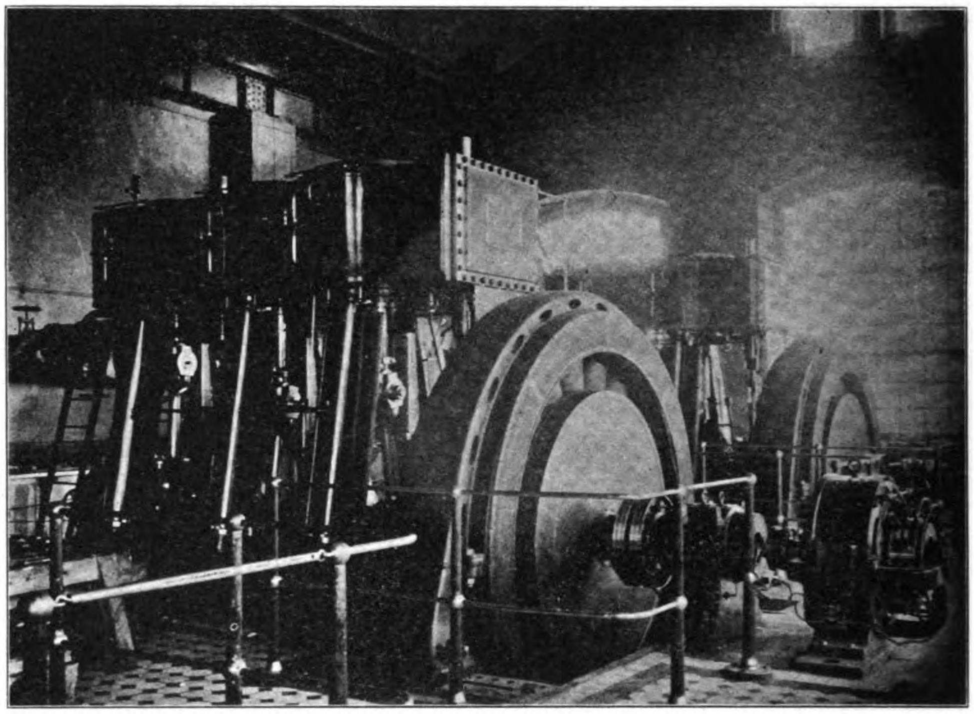
ELECTRIC LIGHT AND POWER STATION, HARBIN. GENERATING ROOM

efforts to renew a spirit of confidence and promote trade with the natives, but there is a lack of co-operation on the part of the Russian merchants. But powerful as they are, the Railway and the Bank cannot carry the load indefinitely. There must be an end. The last financial year of the Bank was closed without the payment of the customary dividend. The Railway is losing at the rate of 5,000,000 roubles per annum. The budget for 1908 was based on an estimated income of Rbs. 15,857,793; expenses (including Rbs. 625,388 interest on bonds) were Rbs. 19,265,110 or an estimated deficit of Rbs. 3,407,317. The actual deficit is, however, claimed to be in the neighborhood of Rbs. 5,000,000.

Yet there is apparently no sign of retrenchment. The Railway administration building swarms with employees, and extravagance is still the order of the day. War prices continue, or at least charges are higher in Harbin than in any other port of the Orient. Hotel charges, droshky hire, rents, and the general cost of living is at least double the cost in Shanghai.

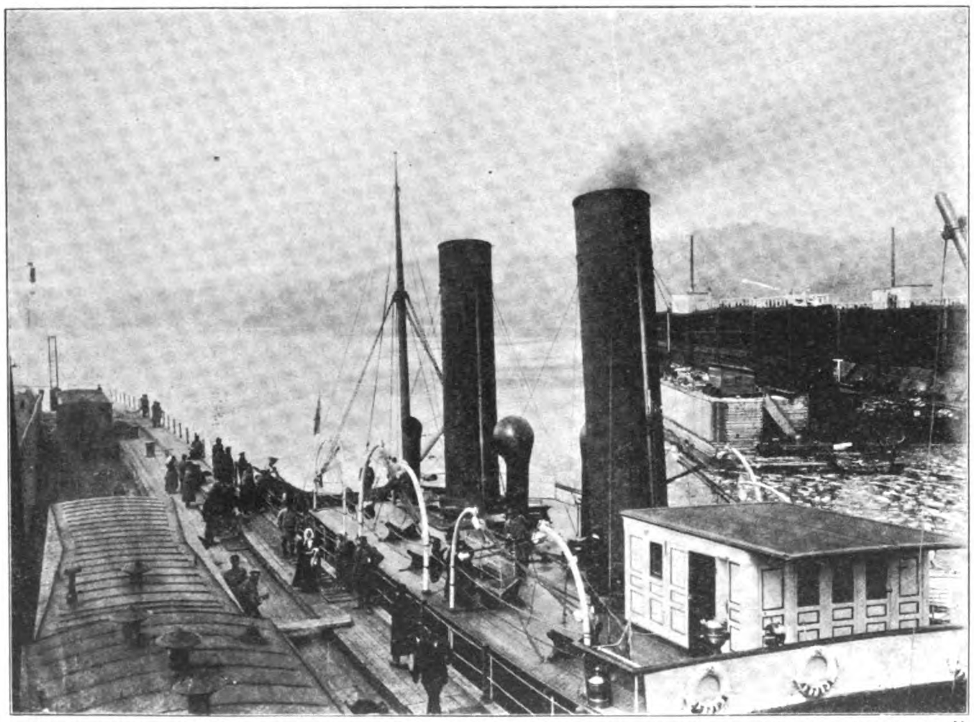
And to complicate the general industrial depression, the political situation has been steadily increasing in intensity, and has now reached an acute stage. As already noted, Russia has interpreted the terms of the railway concession as giving the Railway company exclusive and absolute administration of the Railway lands or zones. This is according to the French text of the agreement. The Chinese claim that this stipulation was not in the original Chinese version of the document, and that during the occupation of Peking, their original was stolen from the records, and the Russians have since been acting on their own reading of the terms. Nevertheless the Russians have acted on this interpretation of the agreement, since they began their work of construction, and Harbin has been to all intents and purposes a part of Russia, and ruled under Russian laws.

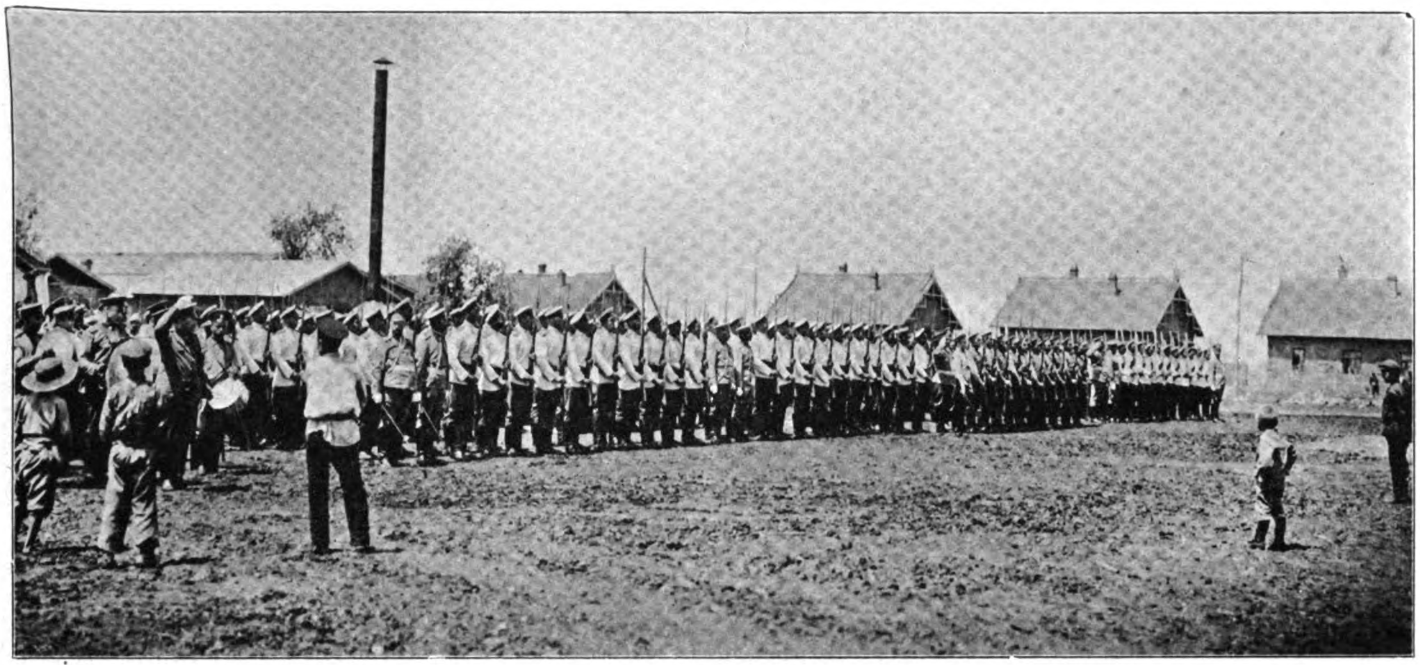
As a result of the war, Harbin was opened to the world as a treaty port of China, which gave to foreigners the right of residence and engaging in trade under the existing extraterritoriality laws prevailing throughout the Empire. A Chinese taotai was ordered to the new port, and a Consul-General sent out from Russia to take over the representation of her national interests. Right here a fierce internal dispute arose amongst the Russian officials. The head of the Railway, Major Gen. Hovarth, insisted that he was the supreme authority, while Luba,


HARBIN: ONE OF THE GENERATING SETS IN THE ELECTRIC LIGHT AND POWER PLANT

HARBIN: CHOORIN AND COMPANY'S DEPARTMENT STORE IN PRISTAN

HARBIN: THE LARGE DEPARTMENT STORE OF CHOORIN AND COMPANY IN THE OFFICIAL CITY


TRANS-SIBERIAN RAILWAY: THE ICE BREAKER AND RAILWAY FERRY STEAMER "BAIKAL," AND FLOATING DOCK

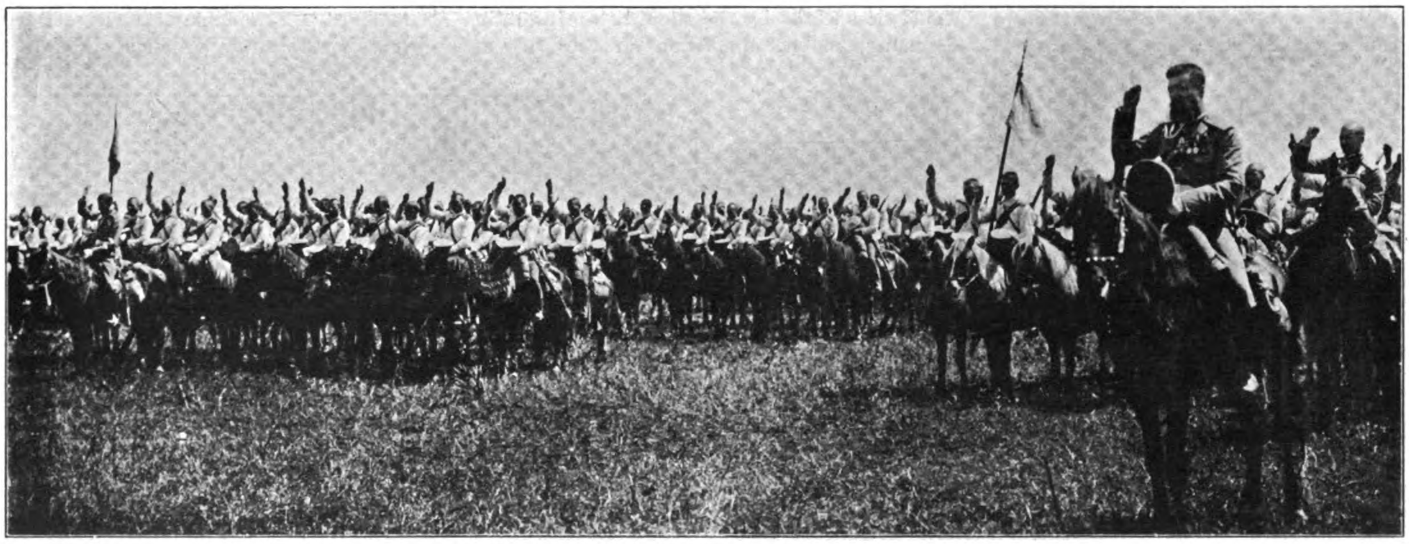


HARBIN: THE RAILWAY GUARDS AT INSPECTION

the new Consul-General, took the stand that as he was sent out to Harbin in that capacity, he would carry out his instructions, and defying the railway he stated that all judicial and other matters affecting Russian citizens would be decided by him. In other words, Luba, the representative of the Russian Government, refused to recognize the right of the Railway as a commercial company, to enforce its will and regulations and assume the functions of a governing power. The situation created was an impossible one for the railway, and the wires were pulled to have Luba removed. On a trumped charge of receiving bribes he was called to St. Petersburg to explain, and shortly afterwards Major General Hovarth was appointed acting Consul General in his stead, in addition to his position of chief of the Railway staff.

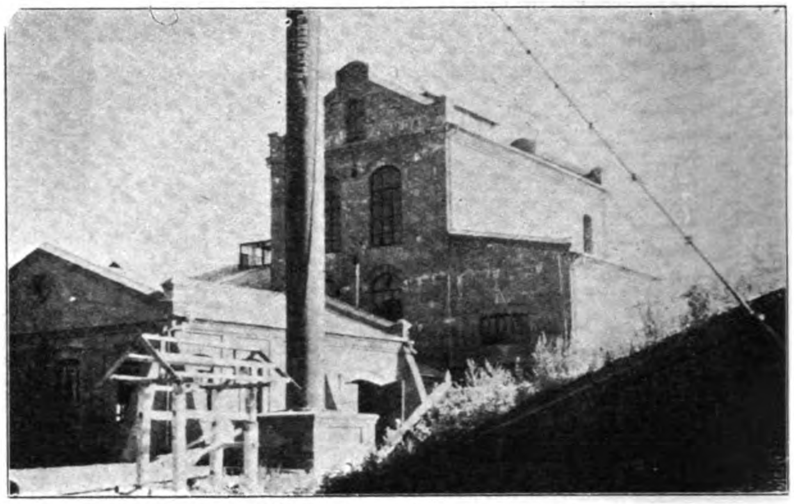
The United States and Japan sent Consular officials to the new port, and France appointed a consular agent. Great Britain and Germany refrained from creating a new consulate for the port, leaving their nearest representative to make occasional visits. The Russians again asserted their contention that Article 6 of the Standard text of the railway agreement gave them the exclusive and absolute right of administration in the Railway territories. The argument was brought forward, that Harbin was purely railway territory, that previous to the war the Town as such did not exist, and the ground covered by the present city was planned, laid out, and erected by the railway, or Russian or Chinese individuals who purchased land from the railway. The Harbin opened to the world as a Chinese treaty port must therefore refer to the Chinese town four miles away under the jurisdiction of China, and administered by the Taotai. The Russian Minister at Peking sent identical notes to his colleagues, to the above effect, requesting them to communicate the contents to their Consular representatives in Harbin and Manchuria. Japan alone of all nations, through its Minister at Peking, Baron Hayashi, supported the stand of Russia and instructed Consul General Kawakami at Harbin, that the right of administration in the railway zones belonged to the Railway Co., and to notify the Chinese authorities to that effect. Baron Hayashi, at the same time, secured from his Russian colleague a definite assurance that Russia would reciprocally recognize similar rights in the Japanese zones of the South Manchuria Railway, which operates under the same convention as the Chinese Eastern Railway.

This further complicated the situation at Harbin. Many Japanese had established themselves in business in Fu-tu-tien, the Chinese city. The Chinese Taotai attempted first to expel them, as the territory was not a treaty port, but the Japanese refused to budge. Then he attempted to levy the customary Chinese lekin tax on their business. The Japanese refused to pay, and were supported by their consul. A British firm then established itself in the native city to be nearer its customers, and the taotai attempted to levy the tax on their merchandise. This firm, seeing that their Japanese competitors paid nothing, took the same stand. The Railway said to the foreigner, you can't do business in Harbin, unless you recognize Russian authority and laws, and pay our taxes. If you want extraterritoriality get over to the native city, this is not a treaty port. The Chinese said to the foreigner, get out of



HARBIN: RAILWAY GUARDS AT SERVICE FORMATION

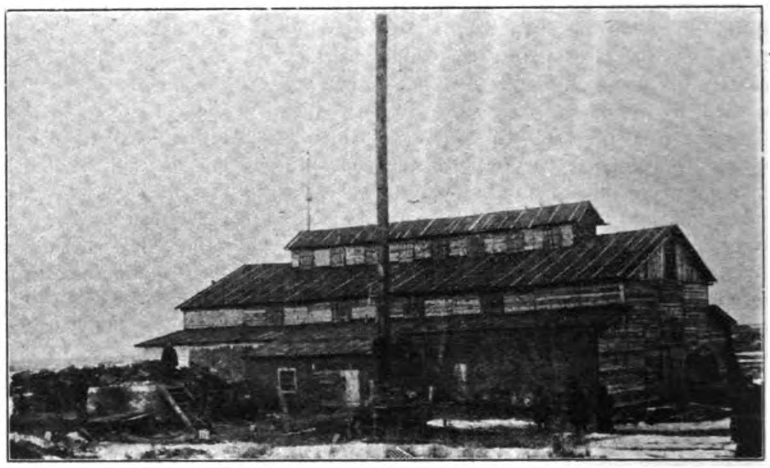
HARBIN: THE JEWISH SYNAGOGUE



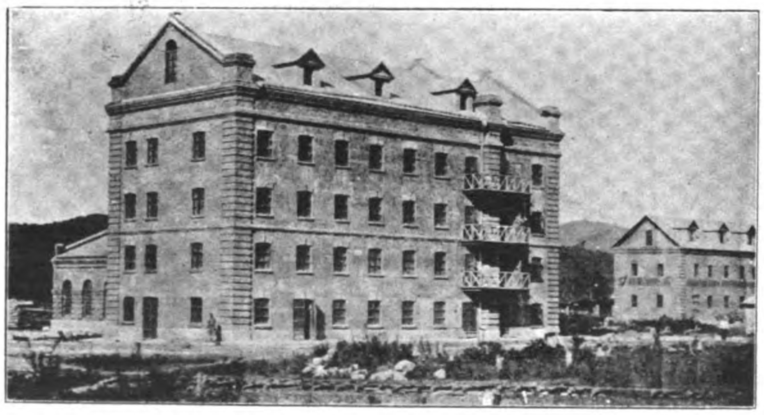
HARBIN: ONE OF THE BREWERIES

here and go over to Harbin, there is the treaty port. If you remain here you will have to pay our taxes and conform to our trade regulation. If the foreigner paid the Chinese tax, he recognized Fu-tu-tien as native territory, and the taotai made strenuous efforts to have the foreign firm mentioned submit to the tax as a precedent. But the foreign firm could not see any advantage in paying a tax, when their Japanese competitors did not, and so give them the trade advantage. Japan is playing both ends to win her own point. Through diplomatic channels, she recognizes Russia's claim to exclusive jurisdiction which of course makes Fu-tu-tien the treaty port, and, in accordance with treaties, refuses to allow her merchants to pay the lekin tax on goods. If this point is conceded, she can apply the same rule to the large cities along the South Manchuria Railway, when a repetition of diplomatic squabbles will follow. The Railway Company's pretensions to regulate the affairs of Harbin have been strenuously opposed by the American Consul, Mr. Fisher, and by the British and German Consuls at Mukden. There is not a single American merchant in the Harbin district, and only one or two British firms, who would be affected by the stand of the Railway Company, so the opposition on the part of America and Great Britain has been made as a matter of principle and fair play. The Railway Company, however, despite this firm diplomatic stand, has steadily persisted in its attitude, and last year planned to create a municipality which would be presided over by the Chief of the Railway Staff. The opposition to this on the part of the American Consul was so decided that the scheme was not carried out at the time. Yuan Shih-kai, while head of the Waiwapu, had also firmly refused to recognize Russia's claims in this direction, and his dismissal in January removed a formidable obstacle to the prosecution of the railway's policy. About the same

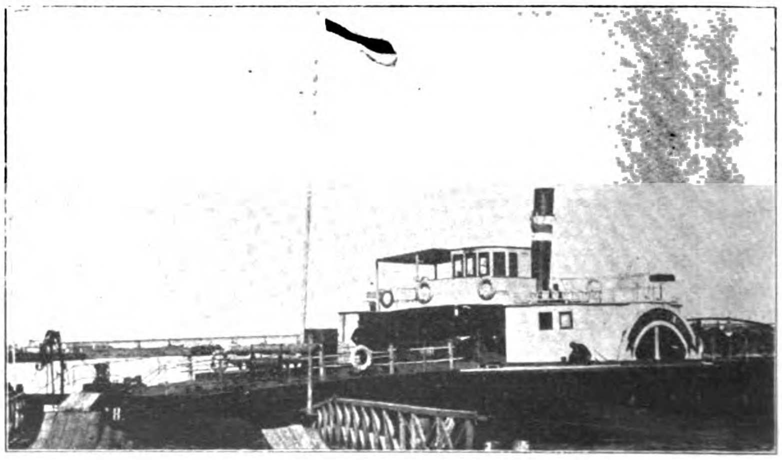
HARBIN: ONE OF THE BREWERIES



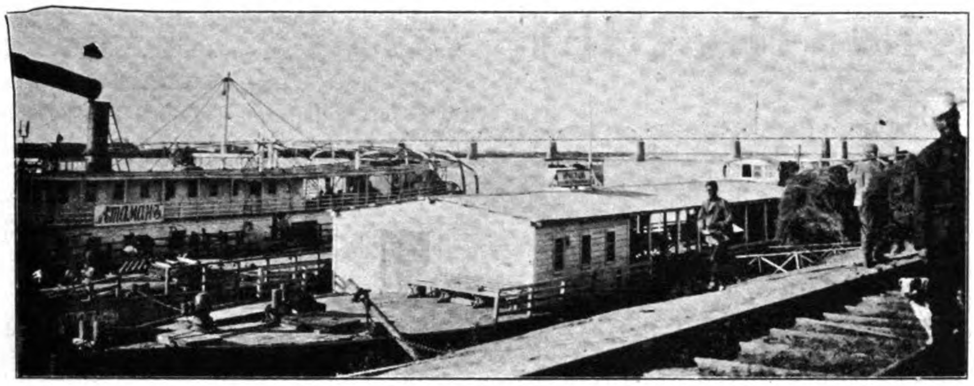
GLASS WORKS NEAR HARBIN



THE FLOUR MILL AT IMENPO, ON THE LINE OF THE C. E. RAILWAY



HARBIN: RIVER STEAMER

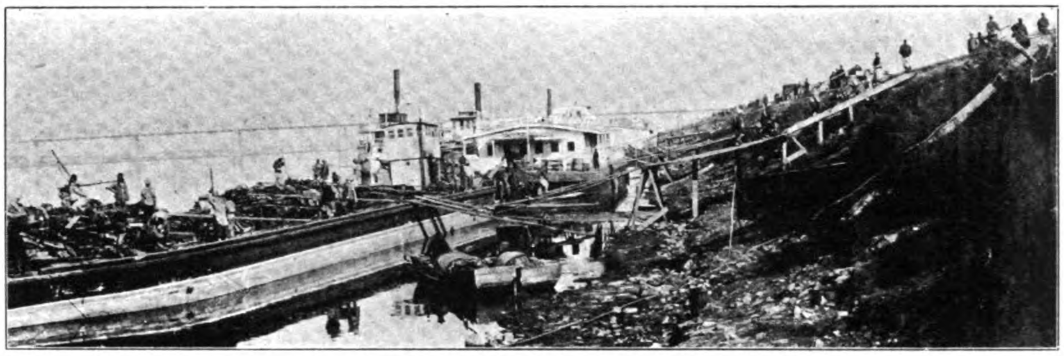


HARBIN: THE SUNGARI RIVER FRONT

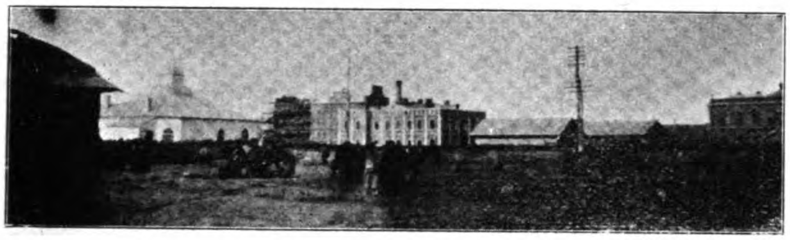
heart of the Northern Provinces. The Railway zone at Harbin itself covers an area of nearly 50 square miles, and the company has the right of acquiring about 150,000 more acres along the entire line, while the zone to the south, under control of the South Manchuria Railway, is nearly 40,000 acres, covered by the same terms.

The Railway Company has already assumed an aggressive attitude by driving out all Chinese merchants in the railway towns who refuse to recognize their authority or pay the taxes. The attitude on both sides to the dispute is uncompromising. Russia and China seem indisposed to give in on any point, while Japan naturally is an interested observer, throwing the weight of her influence with the former.

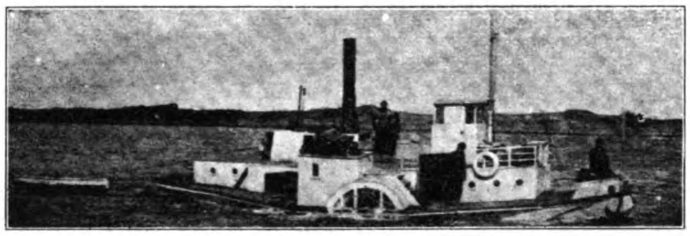
time, Mr. Consul Fisher was ordered to Newchwang, on account of his health, and almost immediately Major General Hovarth put his pet plans into operation and created a Russian Municipal Council, consisting of members of his staff, with himself as Mayor. A code of obligatory regulations were then drafted and placed in force, which provided for taxation in various schedules, and also the obnoxious domiciliary obligations on residents as exists in Russia. This Municipal Organization failed to receive the recognition of other nationalities, with the sole exception of the Japanese. The Chinese have protested again vigorously and the American educated Taotai of Harbin, Shih Shao Che (Alfred Tze), a Cornell graduate,



HARBIN: HANDLING FREIGHT ON THE RIVER FRONT



HARBIN: THE MANCHURIA FLOUR MILLS

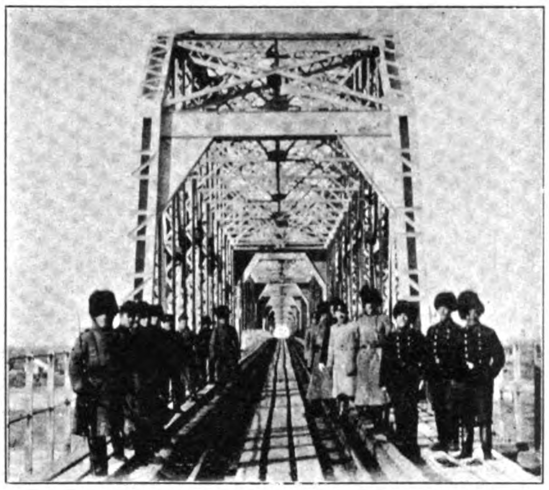


HARBIN: TYPE OF RIVER STEAMER

was ordered to Peking to place the matter in full before his Government. Gen. Hovarth was also called to Peking by his minister, and the question is now receiving the attention of both governments in the effort to arrive at a satisfactory settlement.

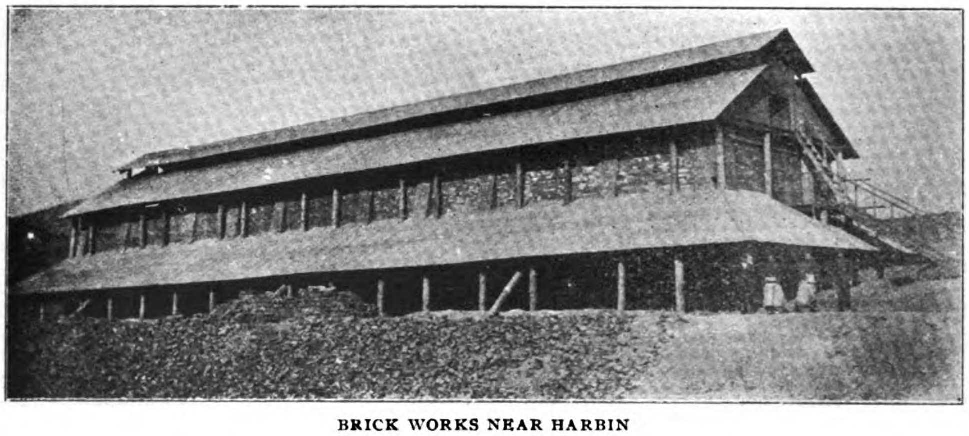
The crux of the situation lies in the interpretation of the original agreement between China and the Russo Chinese Bank. The official text of the document was in French, and Article 6 reads, "The Company will have the absolute and exclusive right of administration in its territory or lands." The Chinese version or translation omits this important sentence. It is unofficially claimed by the Chinese that their translation is the correct one, but the original document in Chinese was lost or stolen during the occupation of Peking by the Allied Forces. In Rockhill's Treaties the translation from the Chinese text fails to include the above lines from Article 6 of the French version.

The grave importance of the issue to China lies in the fact that large areas can be thus brought under foreign control and jurisdiction in the



C. E. RAILWAY BRIDGE OVER THE SUNGARI AT HARBIN

If Russia refuses to recede from her position, the question eventually arises, What then? China is too weak to forcibly assert her idea of right, and Russia's actions are justified by the original French text of the agreement. If this document is the true one, other powers can not interfere, as Russia's action is in accordance with the rights surrendered by China, and does not therefore conflict with the Open Door Policy.



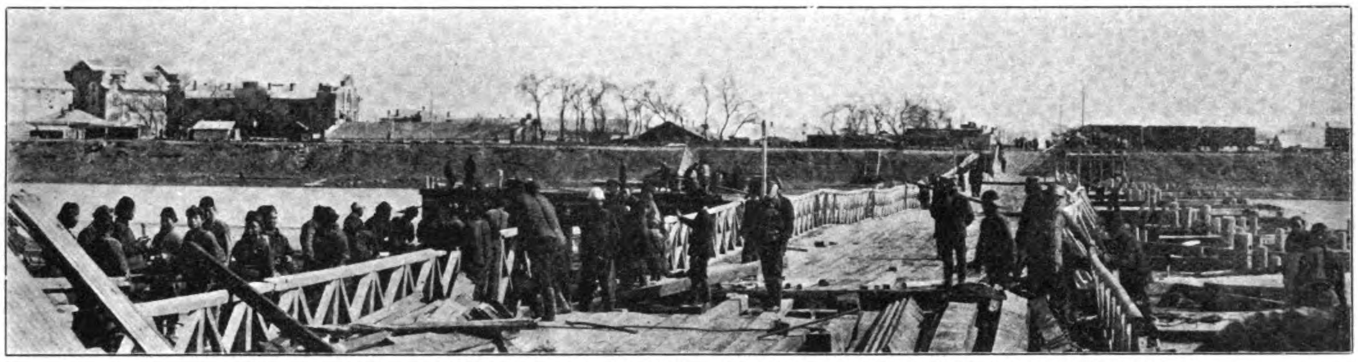
BRICK WORKS NEAR HARBIN

FLOUR MILLING IN HARBIN

(From Our Own Correspondent)

As outlined in the article on the "Rise and Fall of Harbin" appearing in this issue, the flour milling industry of that city and adjacent towns promised at one time to permanently lead all other manufacturing enterprises. The rapid development in Harbin alone earned for the city the permanent appellation of the "Minneapolis of the Far East."

Ten mills were in operation in 1904 producing 4,600 barrels or nearly 1,000,000 pounds a day. These mills were operated day and night and were taxed to the utmost capacity, earning enormous profits while the war lasted. They paid from 30 to 35 cents gold a bushel for the wheat delivered at the mills, and the producing



HARBIN: PONTOON BRIDGE OVER THE SUNGARI BRANCH: SUNGARI FLOUR MILLS TO LEFT.

area was capable of unlimited expansion to meet the demand.

The first mill was started in 1901 producing 150 barrels a day, the second in 1902 with a capacity of 600 barrels, and a third, shortly afterwards. These were the only mills in operation previous to the war, and their profits were so great with the increased demand arising from the influx of the military, others were established as rapidly as the machinery could

CHINESE EASTERN R.R.—THIELING STATION.

KWANGTCHULIN STATION BETWEEN HARBIN AND KWANGCHINGTZE.

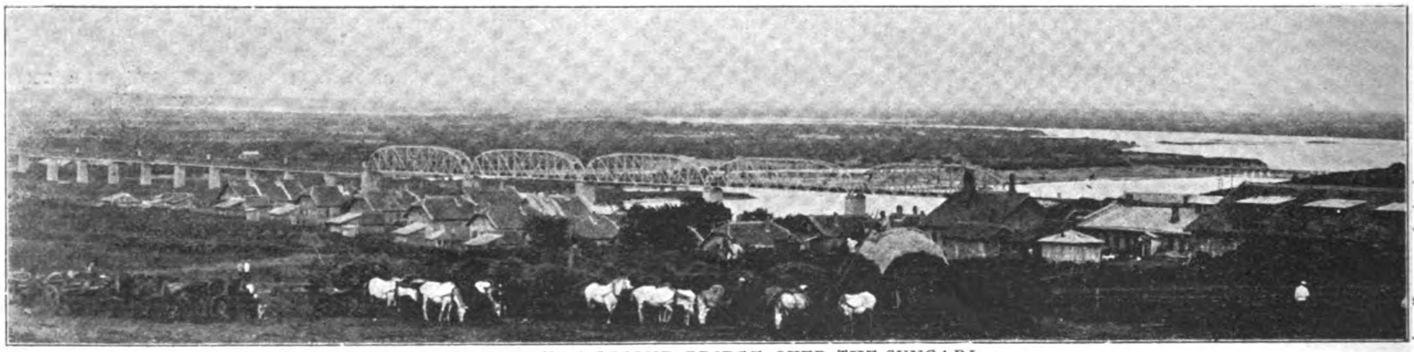
be transported and installed. In the early part of 1903, six mills were working with a daily capacity of 1440 barrels, all equipped with European machinery, with one exception, and that a small concern with American machinery. Then licenses were granted for two more large mills, and by October, 1903, there were eight mills with a daily capacity of 3,800 barrels, erected at a cost of over $650,000 gold.

Several more mills were projected and erected later making a total of 16 mills in Harbin or its vicinity. Most of them were constructed of brick and stone and equipped with the best Austrian and American machinery. In addition to the mills in Harbin, one was erected at Kwangchengtse of 150 barrels capacity, one at Kirin with equal capacity, and another of the same size at Port Arthur. Along the line of the Chinese Eastern Railway at convenient points others followed, for instance, at Hailar, Swanchengpu, Iunampo, Asheho, Fuliardhe, Tsitsihar, while a number were located in the Ussuri District. In South Ussuri, near the Pacific Coast, there were erected twelve steam flour mills and a number operated by water power. The production of these mills alone averaged 450,000 barrels per annum. A list of the flour mills of Northern Manchuria under Russian control follows:

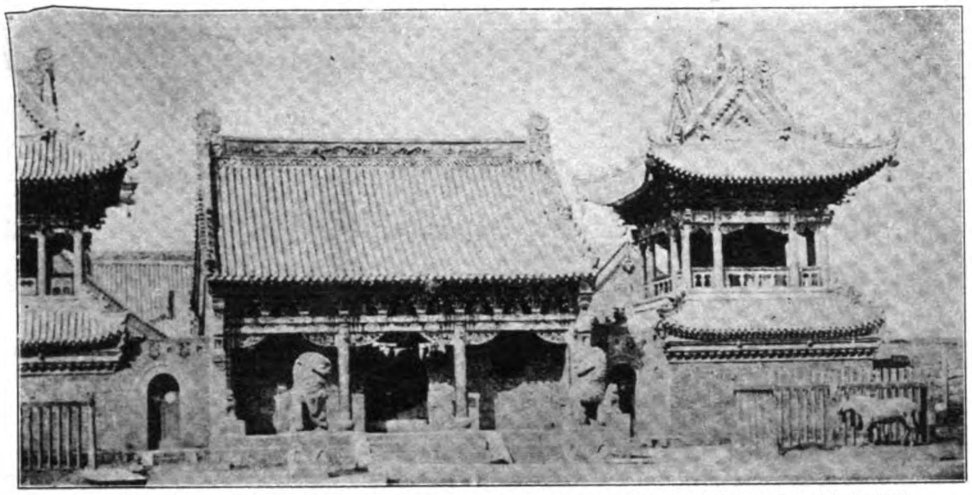
*FLOURING MILLS IN NORTHERN MANCHURIA, ON LINE OF THE CHINESE EASTERN RAILWAY

1 Sungari Flouring Mills, No. 1, Harbin .... 1800 bbls. per day
2 Sungari Flouring Mills, No. 2, Harbin .... 800 " "
3 Kovalsky Flouring Mills, Harbin .... 1200 " "
4 Zuzulinsky Flouring Mills, Harbin .... 1000 " "
5 Southern Flouring Mills, Swanchengpu .... 750 " "
6 Miyakoff Flouring Mills, Hailing .... 750 " "
7 First Manchurian Flour Mill'g Co., Harbin .... 750 " "

* Total Harbin mill capacity 6,000,000 bushels wheat per year. 50 to 65 kopecks a pood (36 lbs.)



HARBIN: THE SECOND BRIDGE OVER THE SUNGARI.



TSITSIHAR: THE YAMEN OF THE GOVERNOR OF HEILUNGKIANG PROVINCE

8	Russian Flour Mill'g Co., Harbin	900 bbls. per day
9	Eastern Flouring Mills, (Drizen), Harbin	400 " "
10	Blagovechensk Flour'g Mills Co., Harbin	550 " "
11	Riff Flouring Mills Co., Harbin	400 " "
12	The Groat Production Co., Harbin	200 " "
13	Rostovskoe Flouring Mills Co., Harbin	150 " "
14	The Borodin Flouring Mills, Old Harbin	550 " "
15	The Tihomiroff Flouring Mills, Inuanpo	900 " "
16	The Erushinolsky Flouring Mills, Asheho	200 " "
17	The Ya-Sun-Dao Flouring Mills, Hailin	200 " "
18	The Kuliaeff Flouring Co., Fuliardhe	220 " "
19	The Chinese Flouring Mills, Tsitsihar	200 " "
20	Swanchengpu Flouring Co., Swanchengpu	250 " "
21	Ki-Feng-Tai Flouring Mills, Kwanchengtse	200 " "
22	Melnikoff Flouring Mills, Kwanchengtse	250 " "
23	Samsonovitch Flouring Mills, Harbin	200 " "
24	Tetukoff's Flouring Mills, Harbin	
25	Skidelsky Flouring Mills, Harbin (formerly the Riff Flouring Mills, Co.)	

With the cessation of hostilities and the withdrawal of the troops came the inevitable crash and depression. Half the mills suspended operations and, gradually, others were forced to close down, leaving only three mills at work during the latter part of 1908. Conditions went from bad to worse for there had been no serious attempt to cultivate a new market. The Chinese, while fond of the flour, consume a vast amount of cheap, coarse, inferior stuff the chief attraction of which is its very low cost. Scattered over Manchuria are hundreds of small native mills where the most primitive methods are employed, and while the daily output is small, the aggregate is large and materially affects the marketing of the machine-made product.

To complicate the development of a market for the Russian mills, the appreciation of silver and the temporary increased purchasing power of the natives, due to the war, permitted the profitalbe importation of American flour. The imported article did not, however, come in competition with Russian mills up north, as it was consumed in the neighborhood of Mukden and Tiehling and never reached the territory north of Changchun. The first importation of American flour into Manchuria occurred in 1899, and in up to 1904 there was an annual average quantity imported of 70,000 to 80,000 bags. In 1905 and 1906 these importations rose to a total of 2,500,000 bags. Since the latter end of 1907, however, the demand steadily declined, owing to the depreciation of silver and the competition of the native mills. The American flour was both superior in quality and higher in price and at Mukden it was sold for $1.35 gold a bag, while the native product brought .90 cents gold for the same quantity.

His Excellency CHOU SHU-MU, Governor of Heilungkiang Province (Tsitsihar)

In addition to the South Manchurian market being lost to the Russians through American competition and the small native mills, the Japanese loomed up as a formidable trade opponent in establishing their own mills. The Manchurian Flouring Mill Company was organized and a plant having a capacity of 1,600 bags a day was erected at Tiehling. This mill is working successfully and its product can be found in all the stores in Mukden. The company also proposes the erection of three more mills, one at Liaoyang, one at Antung, and another at Newchwang.

All of these conditions contributed to injure the expansion of Harbin's industry. As a way out of the difficulty a flour trust was proposed and organized by the Russian millers to control production and price. The railway was included in the scheme so as to participate with capital and to grant favored rates for land and water transportation, as well as by concessions of land in the railway zone. The details of the trust measured the ambition of its promoters. The local grain market was to be controlled and the organizers entertained hopes of an immense export trade and of the conquest of foreign markets. The proposed capitalization was 4,000,000 roubles of which the millers would furnish 1,000,000 and the railway the balance. The estimated output was 80,000 pounds of flour a day. The representative of the company also petitioned the Minister of Finance for a subsidy, emphasizing the necessity of such assistance to foster the growth of Russian political influence in the East. The alluring suggestion apparently failed, for we later find the Sungari and four other mills incorporated into one company. It appears that the mills were able to float a large loan from the Russo-Chinese Bank on the security of their plants and properties, and on this basis some have been able to continue operations.

And thus the end has come to the Russian dreams of a great Oriental Moscow. Subsidies, bounties, favored rates, banking protection, and other governmental and private facilities have been tried and have failed. At first the world looked on and wondered, viewing the marvelous growth and development with alarm. With millions of cheap and effective laborers, unlimited expanse of good wheat country, plentiful supply of fuel and exceptional rail and steamer facilities to the ports of the Pacific, all contributed to make Northern Manchuria a serious menace to other wheat growing and exporting sections of the globe.

TSITSIHAR: THE CAPITAL OF HEILUNGKIANG PROVINCE. MAIN STREET

The cost price of wheat, delivered at the mills, never exceeded 50 cents gold a bushel and varied generally between 30 and 40 cents. The wheat produced about 75% of flour. The prices received ranged from \$2.50 gold a hundred pounds for the best grades to \$1.00 gold per 100 pounds for the very lowest, while bran brought .25 cents a pound. The mills had the advantage of low railway freights and the \$4.00 per ton rate from Harbin to the seagoing steamers at the mouth of the Amur was exceptionally favorable. The profits varied from 15 cents to 45 cents gold a hundred pounds of grain milled. But the stimulus of the army has gone, and it would appear that Russian business ability cannot cope with the many obstacles to developing a legitimate trade.

Harbin, today, presents the appearance of a town in decay. No smoke arises from the many stacks and there is an air of listlessness and abandon, in place of the former feverish excitement.

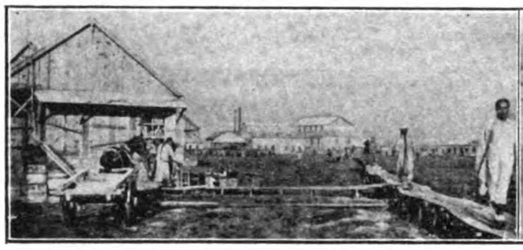
The future of this city is difficult to anticipate. Under normal political conditions, with the good will of the people and a continuation of the paternal solicitude of the Russian government, there is hope of regaining some of the lost ground. The closing of Vladivostok as a free port will protect Siberian mills from outside competition, but unless some energetic and systematic effort is made to cultivate the native Chinese trade, the future of the industry is hopeless. It would prove a herculean task to rehabilitate this industry and put it in a flourishing condition. Russia's opportunity in Manchuria has been irretrievably lost. Where, at the outset, her liberal, extravagant policy in many matters with the natives, won their good will, now the reverse obtains. Russia's political tactics in Harbin and the railway zone have won for them the cordial hate of the native and the open opposition of the Chinese government. While organized boycott has not been inaugurated, there is a tacit understanding among the Chinese traders to purchase from Russia only when absolutely necessary, and among the farmers the tendency is to combine and force higher prices for their wheat. All the combined efforts of the government, railway, bank, and the mills cannot overcome the passive resistance of the Chinese.

The Chinese authorities are making strenuous efforts to colonize the northern provinces and bring the waste lands under cultivation especially in Heilung Kiang province. Nearly 600,000 acres have recently been planted in cereals. It is estimated that the total production of Northern Manchuria is nearly 200,000,000 bushels of various cereals, about half of which is consumed locally. The balance is largely purchased by the Russians for their own consumption across the border in the Trans-Amur district. The low productiveness of the Amur regions, insufficient to meet local demands, causes the government to turn to Northern Manchuria to meet the deficiency. Russia may encourage the Harbin mills to extend the sale of their products in this direction, but if present conditions in regard to the Chinese cannot be ameliorated, the final crash is inevitable.

G. B. R.

HARBIN: COMMERCIAL CLUB

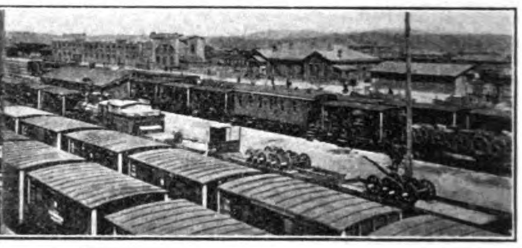
COMMERCIAL SCHOOLS AT HARBIN



HARBIN: FLOUR MILLS

VIEW OF MANCHURIAN FLOUR MILLS

CHANDECHEZ, A STATION ON C. E. RY. BETWEEN HARBIN AND MANCHURIA



C. E. RY. STATION AND YARDS AT MANCHURIA

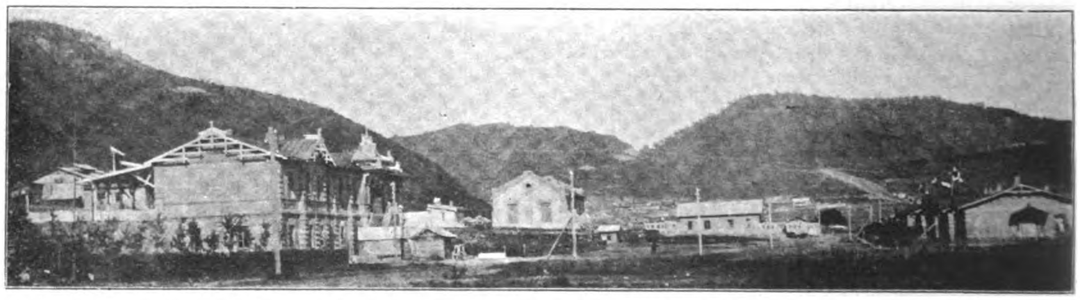
HARBIN: HEADQUARTERS OF GENERAL STAFF FOR TRANS-AMUR DISTRICT

C. E. RY. STATION AT IMJANPO. HAS LARGE BREWERY

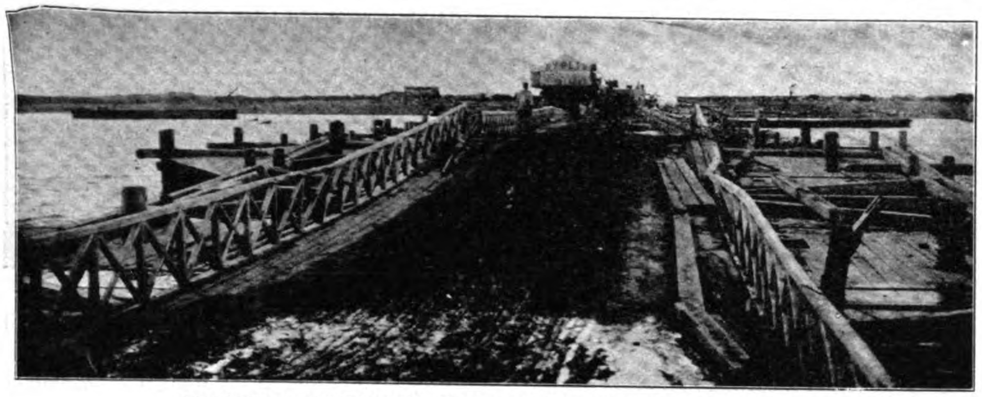
RUSSI'AS MINING INDUSTRY IN THE FAR EAST

St. Petersburg.—The question whether we shall protect our Far Eastern territory—of so great an importance for us—from the usurpation of our warlike neighbors depends neither on the number of troops we maintain there nor upon the speedy building of the Amur Railroad, nor, in fact, upon any other military or strategical measures, but upon our ability to duly organize the colonization of this territory, and to develop its industries, chiefly the mining industry. The richness and diversity of minerals in Russia's Eastern provinces are undoubted, but nobody is working at them. Attempts have only been made to mine gold and coal, which, should the work be well organized, ought to give brilliant results. Along the

* *Mining Journal's* correspondent at St. Petersburg.



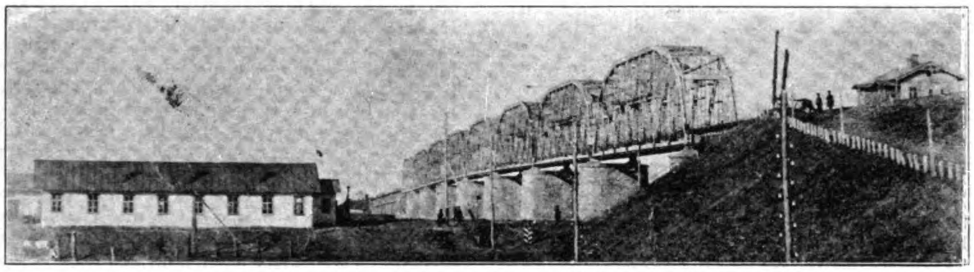
A TYPICAL STATION ON THE C. E. RAILWAY



PONTOON BRIDGE OVER THE SUNGARI BRANCH AT HARBIN

whole extent of our Pacific coast there is not a single metallurgical factory or a well-organized mining enterprise. Some of the existing enterprises—for instance, Makovsky, on the Sakhalin—are liquidating business; others, instead of mining the best imaginable coal, bury gold in the ground, without any hope of ever extracting it. The chief reasons for such mining stagnation are: limiting laws regarding the mining industry, absence of capital, and lack of knowledge and energy. In vast territories along the Pacific and Okotsk coasts the mining industry was prohibited by the Government, owing to the special "importance of the localities in a

A STATION ON THE C. E. RAILWAY



HARBIN: THE RAILWAY BRIDGE OVER THE SUNGARI

military strategical respect. Only recently the Okhotsk coast was opened for mining, and now the Government contemplates doing the same for the so-called 100-verst strip of the Pacific coast. Russian capitalists do not venture to undertake anything in the Far East, in view of the remoteness of the country, economical and political uncertainty, and constant threats from the side of Japan. Some of the operators would be willing to undertake any industrial business, iron or coal, but require guarantee and loans from the Government, wishing to mortgage them materials, coal, and rails, which they will supply to the Government. Others require the Government to pay them, in advance, half of the price of the whole order given, and after receiving such an advance they are ready to invite foreign capitalists to participate in the enterprise. It is most interesting to note that the Government has sometimes complied with such requests, and loaned big sums to non-existing works, and certainly the results for the Government were most deplorable. It is difficult to hope at present that Russian capital will be invested in the Far Eastern industry. Owing to its internal loans the Government withdraws Russian capital from industrial enterprises, and the exorbitant interest (6 to 7 per cent.) paid on such loans induces such capital already invested in industrial enterprises to be transformed into Government interest-bearing paper. The revival of industry in the Far East is at present possible only with the help of foreign capital, and the Government ought to give all possible encouragement to foreigners who would honestly and seriously take this matter in hand. I am sorry to state that the reactionary Press—whose opinion the Government considers—at every new foreign enterprise undertaken in Russia, begins to raise its voice, lamenting the "sale of Russia to foreigners," arousing political and economical difficulties.

The Government and the State Duma have decided to retain our Far East territory at any cost, which is quite comprehensible, because the Amur and the adjacent Primorsky region are Russia's future colonization and industrial reserve. Moreover, the Far East can hope for a great development of the mining industry, because in the vicinity there exist quite ready and secure markets—in the first place, Japan, where oil is wanted as fuel for their torpedo fleet, and China, with the new requirements of its 500,000,000 population. The Chinese and German merchants have already come to understand what profitable business might be done with the latter, and are already soliciting from the Russian Government concessions for oil extraction in Sakhalin. Besides oil, the Far East is rich in coal; and, at the same time, the Amur region consumes enormous quantities of foreign coal—viz., Japanese, British, Westphalian, and even Australian, paying over 4,000,000 roubles, chiefly to the Japanese.

As to other imports to the Far East, we may mention that, according to data of the Custom Dues Department, 4,000,000 poods of iron (in 1903, before the war, 1,000,000 poods, and in 1906, 2,000,000 poods) have been imported during the period of from 1901 to 1906. Calculating the price of iron at Rs. 2.50 per pood, it is evident that Russia has paid to foreigners, during the last six years, over 10,000,000 roubles for the very same product, heaps of which are wasted along the shores of the bay of St. Olga.

Lack of yards and works in Vladivostok obliges the Government to send ships in separate parts, spending millions of roubles for transport. The

THE CHURCH IN THE ADMINISTRATION CITY, HARBIN

Amur Railroad will require 10,000,000 poods of rails; calculating 1 rouble per pood, this will amount to 10,000,000 roubles. If Russia would only work its own iron mines along the shores of the St. Olga bay it need not spend a single rouble on foreign iron, and the Amur Railroad would be built of home material.

The gold industry is also awaiting a great future: with the adoption of cheap modes of working gold mines, dredges, and excavators, the yield of this metal, now reaching 600 poods per year, will grow to an enormous extent. Moreover, new enterprises begin to be created in the north-east of Russia—viz., on the Tchukotsk peninsula and the Okhotsk shore.

HARBIN.—ACCOUNTING DIVISION OF THE C. E. RY.—BUILT FOR RAILWAY CLUB HOUSE.

HARBIN.—RESIDENCE OF ENGINEER.

THE HON. LAO-KE (ALFRED SZE)
CUSTOMS TAOTAI, HARBIN—A. B. 1901; A. M., 1902, CORNELL.

Foreign capital, knowledge, and energy will find here a vast field of development. Let us hope that the British-Russian friendship will induce not speculative persons, but serious capitalists to invest their money in Russian enterprises, and I am sure that they will find it worth while, and that their trouble and investments will bring them a good profit.

On January 1, 1909, the term for duty-free entry of machinery for the Ural and Siberian gold mining industry expires. This attracts general attention, and, as I have already written you, it was generally expected that the above term would be prolonged. But at present the Minister of Trade & Industry objects to it, giving as reason that, the amount of such machinery being very limited, the expense of gold miners will not amount to any considerable figure, whereas the duty-free entry of above machinery is in contradiction with the general protection system of our Government, and gives cause to other branches of industry to ask for similar exemptions. Therefore it is likely that a duty will be fixed on the above machinery. A deputation of gold miners hope to have an interview with the Minister on the subject.

PROPOSED PHILIPPINE REVENUE CUTTERS

The Bureau of Customs of the Philippine Islands contemplates the acquisition in the near future of two vessels suitable for use as revenue cutters in the Philippine Islands Customs Service. These vessels are intended for patroling and scouting along the coasts and through the tortuous and, in some places, shallow waters of the Philippine Archipelago for the purpose of preventing smuggling from neighboring islands. The principal points to be considered in designing them will therefore be light draft, low free board, stability, quick action, and speed. As the vessels will be especially designed for this class of service and will not be required to carry cargo other than its own stores, and as cabin accommodations will be provided for the necessary customs officials only, the expense that would otherwise be involved in fitting them for passengers and cargo may be devoted to increased efficiency. The proposed act of the Legislature authorizing their purchase specifies that they shall be of steel, not less than 140 feet in length over all with proportionate draft and beam suitable to the requirements, fully equipped and furnished, ready for service, capable of not less than sixteen knots mean speed; each armed with one rapid fire one-pounder gun and two machine guns, provided with suitable search lights, electric, distilling, and cold storage plants, and furnished, in addition to the usual life boats, with one fast deck launch, propelled by steam or gasoline, not less than 32 feet in length, and capable of developing 22 knots per hour.

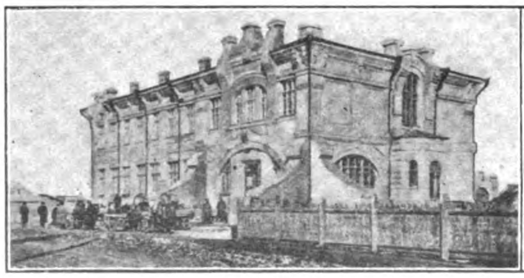
Prior to deciding where the vessels shall be constructed the Bureau of Customs has expressed a desire to receive from reliable ship builders plans and specifications of vessels that will meet its requirements as well as the terms at which they would be willing to enter into a contract to furnish them.

*THE LAW CONCERNING JAPAN'S SUBSIDIES TO DISTANT NAVIGATION

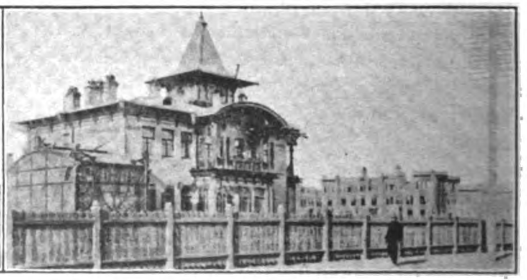
The particulars of the law relating to distant Navigation as introduced into the present session of the Diet are as follows:—

1. *The Contract for Subsidies.* The Minister in charge may grant subsidies to those subjects of the Empire or those companies composed of Japanese subjects alone, for a period not

* Japan Financial and Economic Monthly.



HARBIN.—HOME OF MILITARY GOVERNOR.



HARBIN.—TAOTAI'S YAMEN IN PRISTAN.

CHINESE EASTERN RAILWAY: A TYPICAL STATION

shorter than three and not longer than ten years. Subsidies may be granted to the following lines:

(1) European lines.
(2) North American line.
(3) South American line.
(4) Australian line.

2. *Subsidized Vessels.*—The vessels to be subsidized must be over 3,000 tons and must have a speed of over 12 knots. They must have met certain requirements appointed by the Minister in charge and must be built of steel and their age must not exceed 15 years, while the speed is figured out by the standard appointed by the Minister in charge.

3. *Subsidies and Foreign Vessels.*—Foreign made ships may not have the privilege of being subsidized, provided that those ships, whose period of service has been 5 years and which have the sanction of the Minister in charge, form an exception.

4. *Navigation Subsidies.*—The amount of subsidies is less than 50 sen per ton, per 1,000 nautical miles for a vessel possessing a speed of 12 knots per hour; provided that an increase of 10 per cent will be made according to an increase of 1 knot per hour, but to the vessel whose period of service is more than 5 years, there will be a decrease of 5 per cent, and to foreign made ships, about a half of such subsidies granted to Japanese ships will be made.

To those ships which were built under the special sanction of the Minister in charge and those vessels which have not been running more than 5 years since the period of service was commenced, subsidies amounting to 25 per cent will be increased. To a fraction less than 1 ton and a mile no subsidies will be granted.

5. *Subsidized Lines and Freight Charge.* The passenger and goods freights will be charged under the sanction of the Minister in charge. If the Minister in charge finds it necessary, certain kinds will be specified, according to which the passenger and freight charges must be scaled.

6. *Subsidized Vessels and Mail Matter.*—Subsidized vessels must convey mail matter free of charge, and proper provisions must be made for conveying wireless communications, and also officials dispatched by the government must be conveyed free of charges.

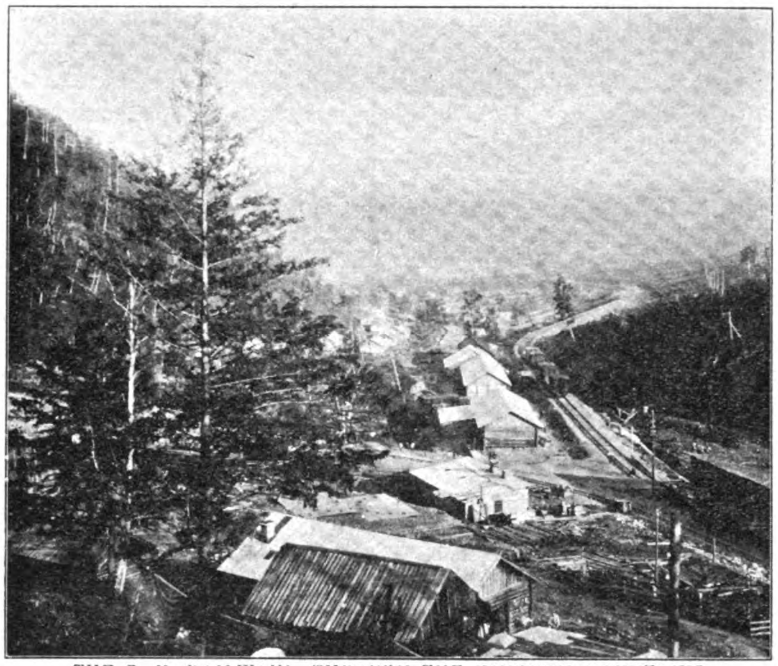
7. *Subsidized Lines and Provisions.*—In obedience to the instructions of the Minister in charge, proper equipments shall be made to carry on periodic services.

8. *Subsidized Routes and Training of Seamen.*—According to the directions given by the Minister in charge, the seamen must be shipped for service according to the following rates:

(1) From 3,000 to 5,000 tons—4 seamen.
(2) From 5,000 to 8,000 tons—5 seamen.
(3) The total tonnage over 8,000 tons—6 seamen.

9. *Navigation Subsidies and Employees.*—Unless specially sanctioned by the Minister in charge, foreigners may not be employed in the principal and branch offices of subsidized companies. In case foreigners have to be used, the captain must report the case to the minister in charge.

10. *Subsidized Lines and the Statement of Accounts.*—In accordance with the instructions given by the Minister in Charge, a statement of



THE C. E. RAILWAY: THROUGH THE KINGDOM MOUNTAINS

accounts and the condition of business should be reported.

11. *Subsidized Ships and Chartering.*—The Minister in charge may fix a reasonable sum of compensation and may charter subsidized vessels for public use.

12. *The Transference of Subsidized Vessels.*—Subsidized vessels may not be transferred to foreigners within the three years counting from the time when such subsidy expires, except when the subsidized amount is paid off or when, owing to calamity, navigation is found impossible, this law does not apply strictly.

13. *The following points will be settled by the Minister in charge.*

(1) The starting and touching points and terminus of subsidized lines.

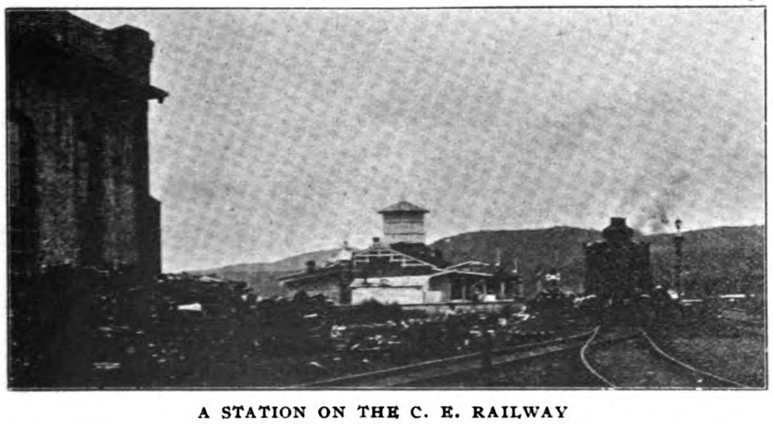
(2) The number, tonnage, and speed of subsidized vessels and their substitutes.

(3) The time, and days of subsidized navigation.

(4) The *modus operandi* for the payment of subsidies.

(5) The suspension, redemption and other settlements of subsidized vessels for not fulfilling their obligations.

These laws will take effect from 1st January 1910 and will supplant the preceding naval encouragement laws. To foreign ships registered previous to September 30th 1899, the regulation No. 4 is not applicable.



A STATION ON THE C. E. RAILWAY

SMALL COAL MINE OPERATED BY RUSSIANS ON LINE OF THE C. E. RY.

FUSHUN COAL MINES

Location of Fushun Colliery.—Deviating from the Main Line of the South Manchuria Railway at Su-chia-tun Junction, 267 miles from Dairen, runs a branch line for Fushun 34 miles in distance and almost parallel to the River Hun. The terminal station is Fushun, and the next one this side the terminus is Chien-chin-chai which is the station for the famous Fushun Colliery.

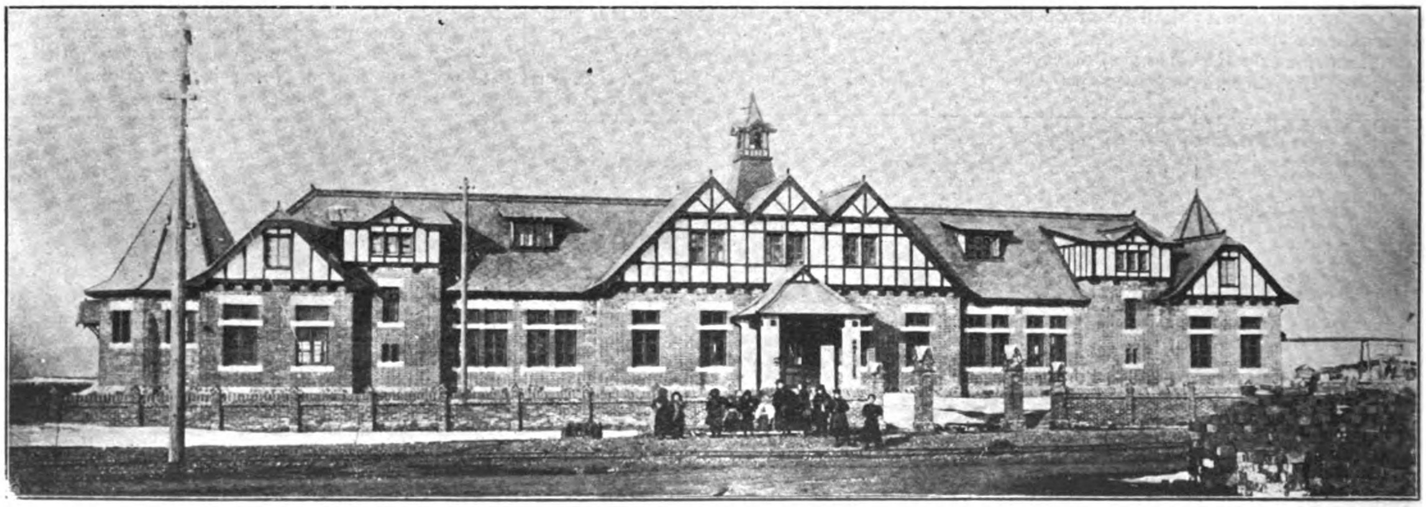
FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. I.

The coal field covers a distance of ten miles from west to east taking a parallel direction with the River. The width of the workable deposits measures at least a mile, and the thickness of the seam which dips in towards the north at the average grade of about 30 ranges between 120 and 175 feet. The most conservative estimate of coal in the belt is placed at eight hundred million tons. The present daily output is about 1,700 tons; but preparations are in rapid progress to increase it up to 6,000 tons in the near future.

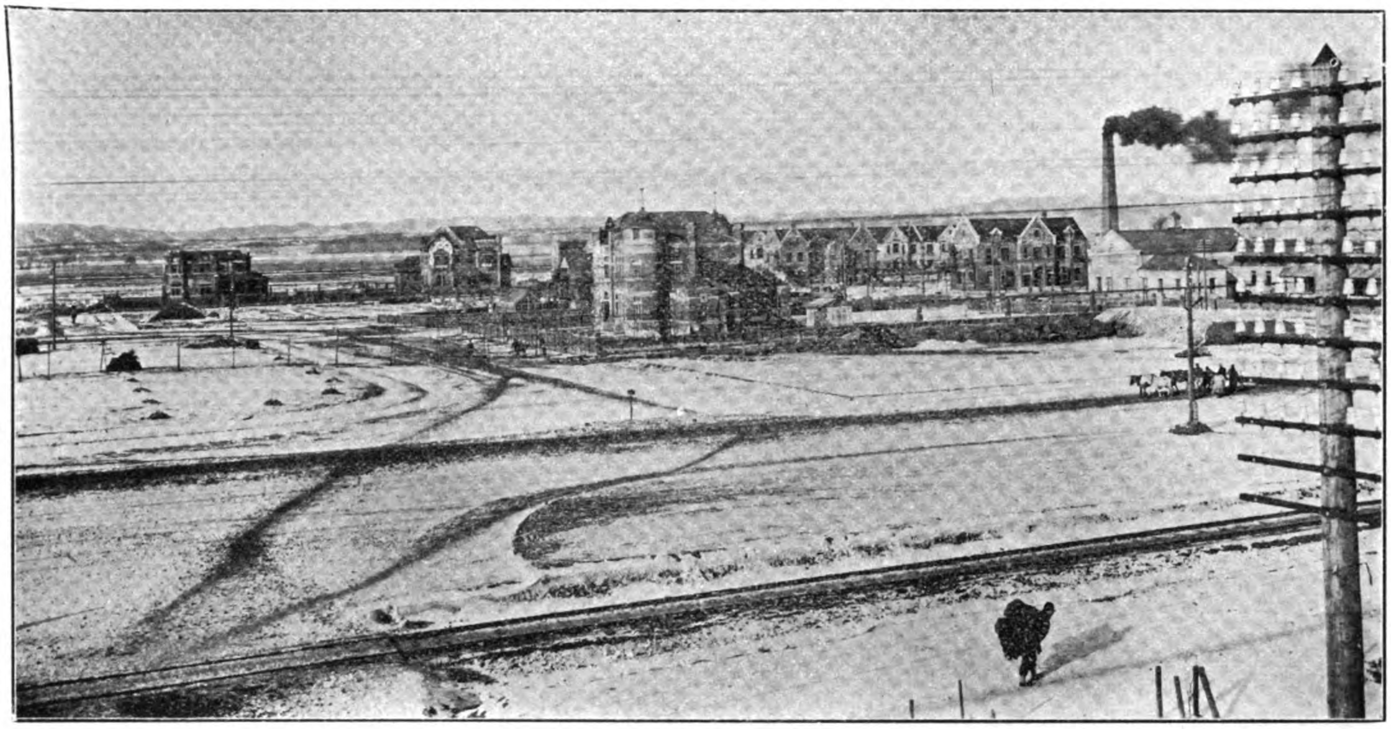
Particulars of Fushun Steam Coal. Quality of Fushun Coal.—Fushun coal was, as most of Japanese coals, formed in the Tertiary period, and is of good uniform quality. It is of a lustrous black color. It is a bituminous coal rich in volatile matter, with a heating power of seven thousand five hundred (7,500) calories. Ash and clinkers are very scarce, and sulphur and other objectionable matters are almost non-existent.

Use of Fushun Coal.—As fuel for locomotive and marine engines, Fushun coal can compete with the best Japanese coal. Because of the large percentage of volatile matter which it contains, Fushun coal is more suited for gas making than any other coal that can be found in the East. It is also suitable for general industrial uses, for brick and lime kilns, smithies, household uses, etc.

Fushun coal does not stick to the grate when it burns, so that even an inexperienced fireman can make a fire with it very easily. It catches fire as soon as it is put into the furnace



FUSHUN COAL MINES: ELEMENTARY SCHOOL HOUSE AT CHIEN-CHIN-CHAI



FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 2.

facilitating an easy cleaning of fire with little loss of steam pressure. Fushun coal gives out very little smoke.

Fushun coal takes fire so very quickly that heat is diffused rapidly and at once, therefore the draft must be carefully arranged. What little ash there is falls easily through the grate, and care must be exercised that the fire proper is not shaken down with the ashes. When this coal is piled up in heaps higher than ten feet it is advisable to provide ventilation.

Reports on Trials of Fushun Coal.—Fushun coal was used on board the steamer *Kaijo Maru* of the Osaka Shosen Kaisha, from July 2, 1908, to August 6, 1908, for three consecutive voyages from Moji to Dairen and return, the results of which, compared with Tagawa coal, one of the best Japan coals, are as follows:

To make the trial as fair as possible the engines were put in as nearly a similar condition as possible for each kind of coal, but it may be noted that the fact that the pipes were cleaner when the Fushun coal was used than they were when Tagawa coal was used may have had some effect to the disadvantage of the latter.

July-August, 1908.

Date	2 to 4	7 to 9	16 to 18	21 to 23	30 to 1	4 to 6
Coal	Tagawa	Fushun	Tagawa	Fushun	Tagawa	Fushun.
Pressure	118 lbs.	181 lbs.	181 lbs.	181 lbs.	181 lbs.	181 lbs.
Expansion	6.2	6.0	6.0	6.0	6.0	6.0
Revolution	81	81	80	80	80	80
Consumption in 24 hours	37.2 tons	34.8 tons	38.4 tons	36.4 tons	37.9 tons	36 tons
Ash	16%	12%	18%	13%	17%	13%
Draft { Fore	10′ 10″	9′ 11″	12′ 11″	10′ 7″	12′	9′ 7″
Draft { Aft	15′ 01″	14′ 00″	15′ 00″	14′ 9″	15′ 2″	14′ 10″

From this table it is clear that Fushun coal has given better results all round than Tagawa coal.

The characteristics of Fushun coal are as follows:

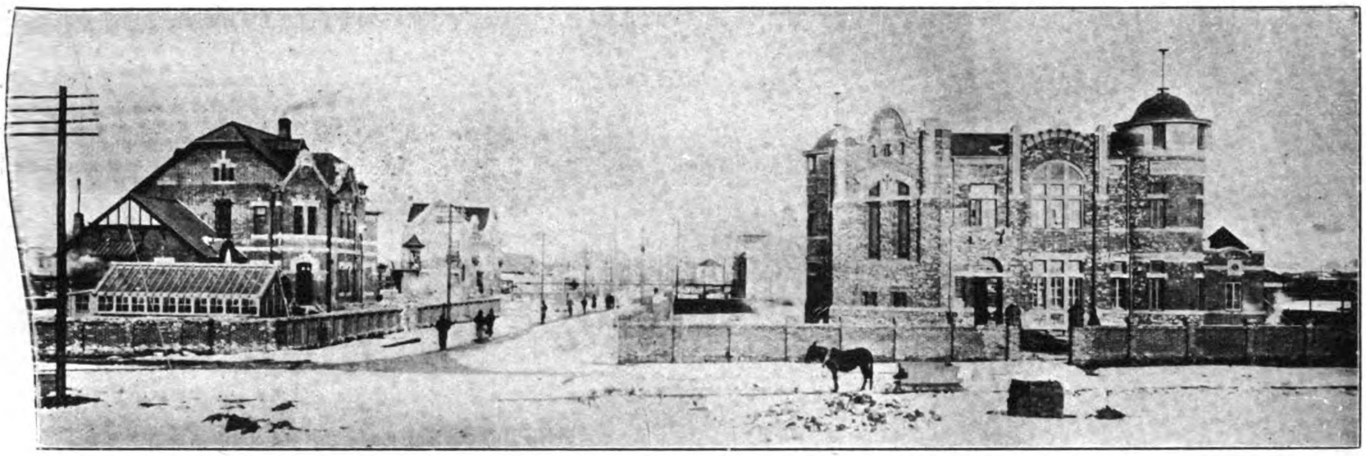
Fushun coal is of a dark brown color and weighs one ton to 42 cubic feet, somewhat lighter in weight than Tagawa coal. When it burns there occurs an escape of gas making a crackling

FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 3.

noise and giving off a liberal quantity of volatile matter. It burns very readily, and soon becomes spongy, but it is very fragile so that the clinkers do not stick to the grates. The flame is longer and the coal burns more quickly than ordinary Japan coal. It leaves very little ash and clinker.

The results of the trial of Fushun coal made on the *Fujisan Maru* of the Mitsui Bussan Kaisha on a voyage from Newchwang to Moji on May 24, 1908, were as follows:

Weather: Fair. Head breezes; calm sea.



FUSHUN COAL MINES: OFFICIAL'S QUARTERS AT CHIEN-CHIN-CHAI

Draft: 17 ft. 2 in. at bow; 17 ft. 5 in. at stern.

Speed: Of engine, 10.9 knots; of ship, 9.5 knots.

Pressure: 175 lbs.

Revolutions per minute: 60.

Horse-power: 985.

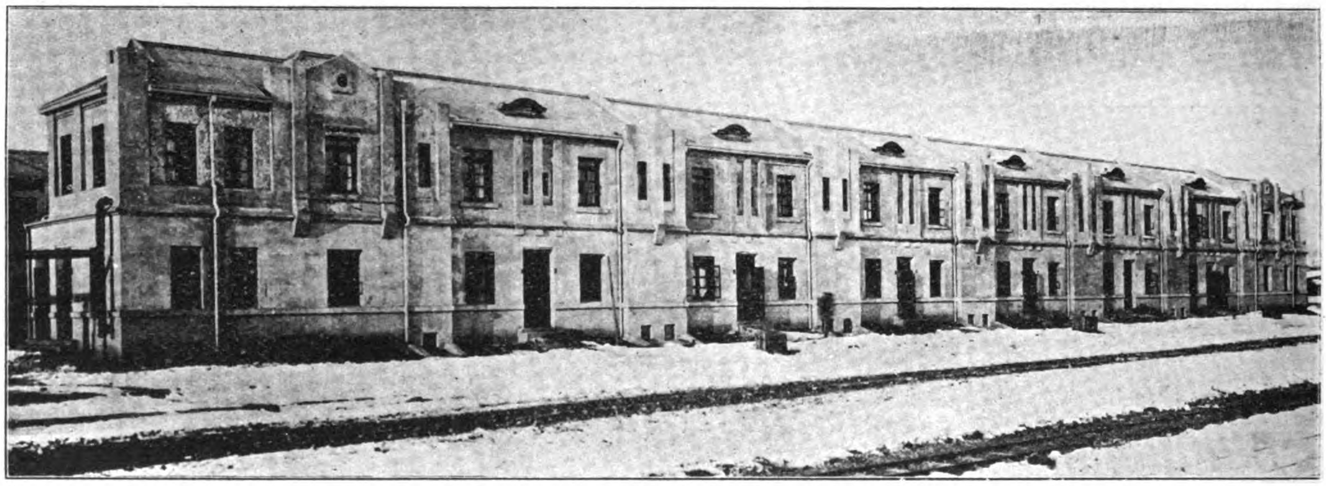
Consumption per 24 hours: 24 tons.

Consumption per horse-power per hour: 2.2 lbs.

Space per ton: 42.4 cubic feet.

Ash: 12%.

Kind of coal: Fushun unscreened coal.



FUSHUN COAL MINES: WORKMEN'S QUARTERS AT CHIEN-CHIN-CHAI

The coal is of good quality, not too hard, black in color and with a strong lustre. When taken into the fire the coal burns up immediately with a slight crackling noise. Its heating power is very great, there are few clinkers, which do not stick to the grate. It is a kind of coal which an inexperienced fireman could easily manage. As the coal is of good quality and burns easily, the fire can be kept up with fewer hands than can ordinary coal. The pressure may be maintained only by the frequent leveling of the fire with the fire-rake and without any effort at airing. As the coal does not cake, the fire can be moved from one boiler to another very easily, thus facilitating a change of boilers, with little loss of pressure. As it burns so readily, what little loss of pressure there is can be speedily regained, and we believe Fushun coal is very superior in this respect. As the smoke is very thin (combustion on the grate being almost complete) this coal is most suitable for steamships. It has very little sulphur, so that there is not much deterioration to the boiler-plate resulting from its use.

A trial of Fushun coal made on the *Amakusa Maru* of the Osaka Shosen Kaisha during a voyage through the Yellow Sea on July 19, 1908, resulted as follows:

Weather: Sea was rather calm; head breezes.

Steam Pressure: 165 lbs.

Revolutions: 75.8.

Net horse-power: 1,894.44.

Speed in water: 12 knots.

Speed of engines: 13.5 knots.

Consumption per horse-power per hour: 2,335 lbs.

Consumption per square foot of grate area per hour: 34.5 lbs.

Consumption per 24 hours: 47.306 tons.

Ash: 8.1%.

Fushun coal is of fine quality, very black, with a good lustre. It burns with a slight crackling noise and shows a little caking.

It catches rapidly and in heating power is not inferior to Moji coal (the Japanese standard variety). The small quantity of smoke given off proves how complete is the combustion. The clinkers are few, allowing the use of the same grate for six consecutive hours, whereas Tagawa coal can only be burned for four hours continuously without change of grates.

The results of a trial made at the brick factory of the Company were as follows:

Fuel: Unscreened coal. :

Quantity consumed: 3 tons per 10,000 pieces.

No. of kilns: 24 compartments.

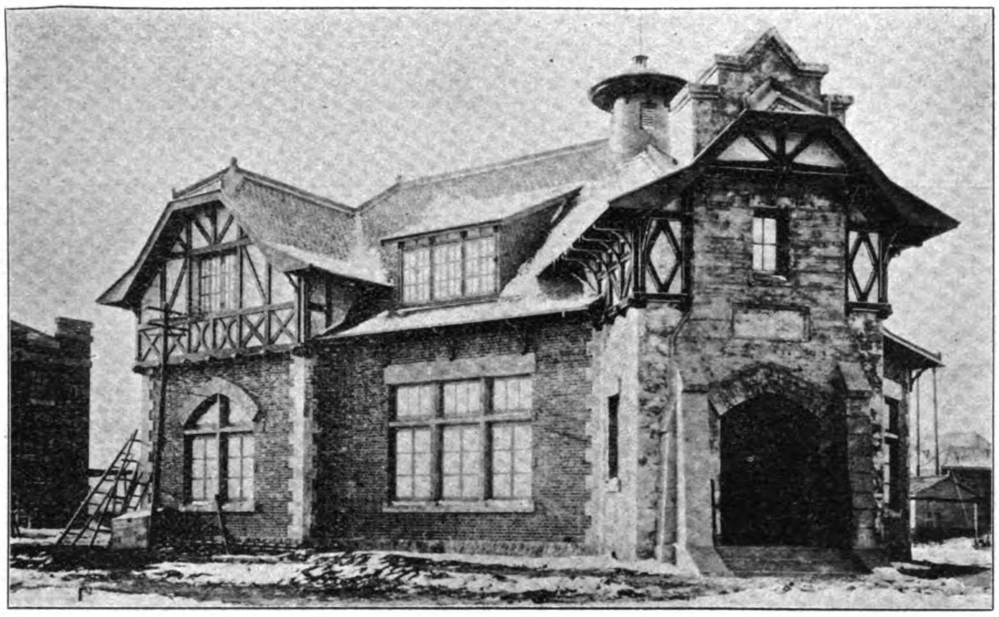
Kind of kiln: Continuous flat kiln.

The continuous flat kiln is an improved form on the Hoffman system, twelve compartments comprising one set, the fire passing around the compartments and baking the bricks. In the trial 3,400 bricks were baked in a little more than 20 hours.

We find that on account of the longer flame of the Fushun coal and the greater diffusion of its heat, it is very easy to send the heat from one kiln to another. The kilns are still new (only two or three months have passed since they were completed) and although three tons of coal were used for making every ten thousand bricks it is expected that the quantity of coal can be much reduced in the future.

The following is the result of an analysis of Fushun coal made at the laboratory of the Natural History Museum, Hamburg, on Feb. 4, 1908.

"Certificate applied for by Dr. Prof. Gottschhe.



FUSHUN COAL MINES: POST OFFICE AT CHIEN-CHIN CHAI

FUSHUN COAL.

	Percentage.	Percentage when water and ash have been extracted.
Carbonic acid	72.58	78.75
Hydrogen	5.37	5.83
Sulphur	0.69	0.75
Nitrogen	1.31	1.42
Oxygen	12.22	13.25
Water	6.48	0.00
Ash	1.35	0.00

The ash consists of salicic acid, oxidized iron and clay. There are traces of lime, magnesia and maganese."

Analyses made at the Miike Coal Mine, the Naval Briquette Factory, the Edamitsu Steel Works and the Fukuoka Mine Superintendent's Office.

MAY, 1905.—MIIKE COAL MINE. ANALYSIS OF FUSHUN UNSCREENED COAL.

Water	6.7067%
Volatile Matter	36.2133%
Fixed Carbon	51.1400%
Ash	5.9400%
Color of Ash	Light brown.
Sulphur	1.2298%
Specific Gravity	13.130%
Calories of Heat	7260.

SEPTEMBER, 1906.—NAVAL BRIQUETTE FACTORY, TOKUYAMA.

	Sample A.	Sample B.	Sample C.	Sample D.
Volatile Matter	56.51	43.67	48.40	44.36
Solid Carbon	40.93	54.08	49.52	53.76
Ash	2.56	2.25	2.08	1.88
Character of Coke	raw	raw	raw	raw
Sulphur	0.64	0.88	0.60	0.65

REMARKS:—Little ash remains. Mixed with anthracite coal it would be suitable for making briquettes.

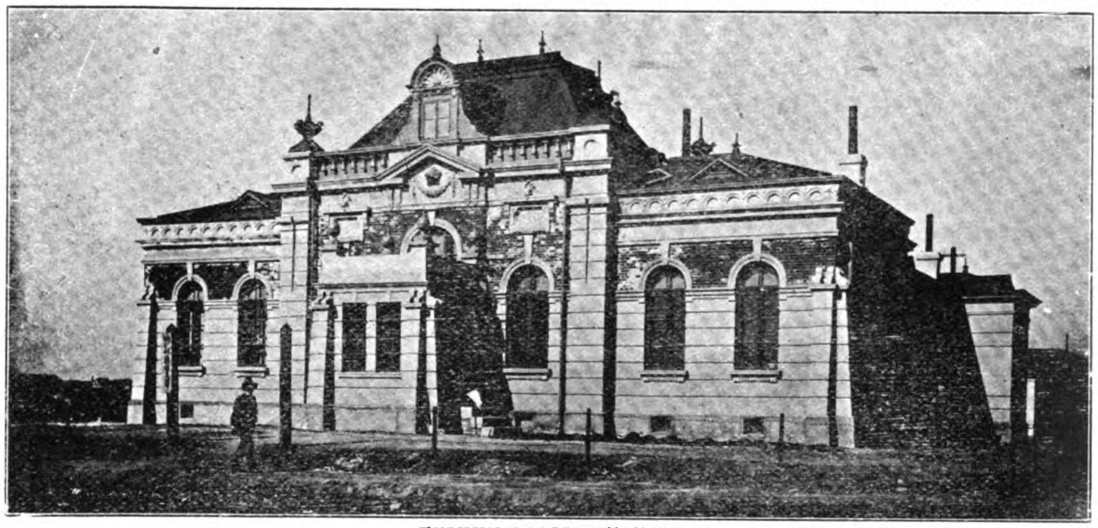
1907.—IMPERIAL STEEL WORKS, EDAMITSU.

	Sample A	*Sample B*
Water	4.61	6.53
Volatile Matter	54.78	49.44
Coke	38.26	42.36
Ash	2.35	1.69
Phosphorus in ash	0.34	0.206
Sulphur	0.728	0.769

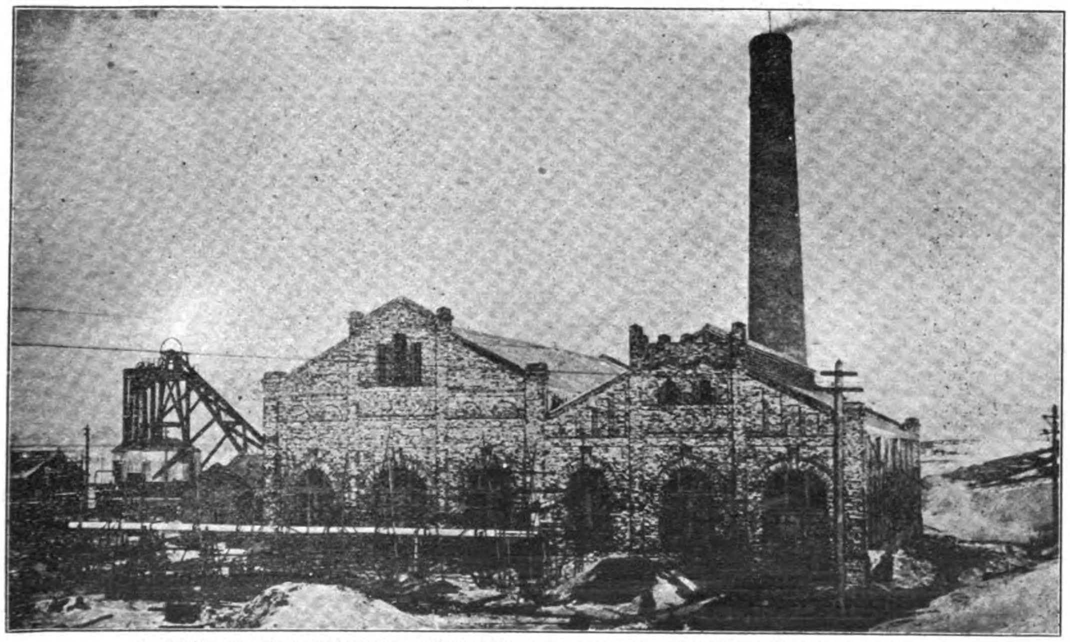
"Kabari" means "hard part of the seam."

SEPT. 1907.—FUKUOKA MINE SUPERINTENDENT'S OFFICE

	FUJI "kabari"	YAMATO "kabari"	ASAHI "kabari"	SAKURA "kabari"
Water	6.640	8.725	4.555	6.295
Volatile Matter	33.210	26.975	41.215	33.815
Solid Carbon	60.150	64.300	54.230	59.890
Ash	4.920	2.340	2.990	2.070
Color of Ash	brown	light gray	light brown	light yellow
Sulphur	0.740	0.480	0.640	0.430
Phosphorus	0.180	0.350	0.470	0.120
Specific Gravity	1.280	1.270	1.220	1.270
Calories of Heat	7.040	7.510	7.480	7.480



FUSHUN POLICE STATION



ELECTRIC POWER HOUSE WITH CHIMNEY 150 FEET HIGH, CHIEN-CHIN-CHAI

FUSHUN COAL STATISTICS FOR 1908.

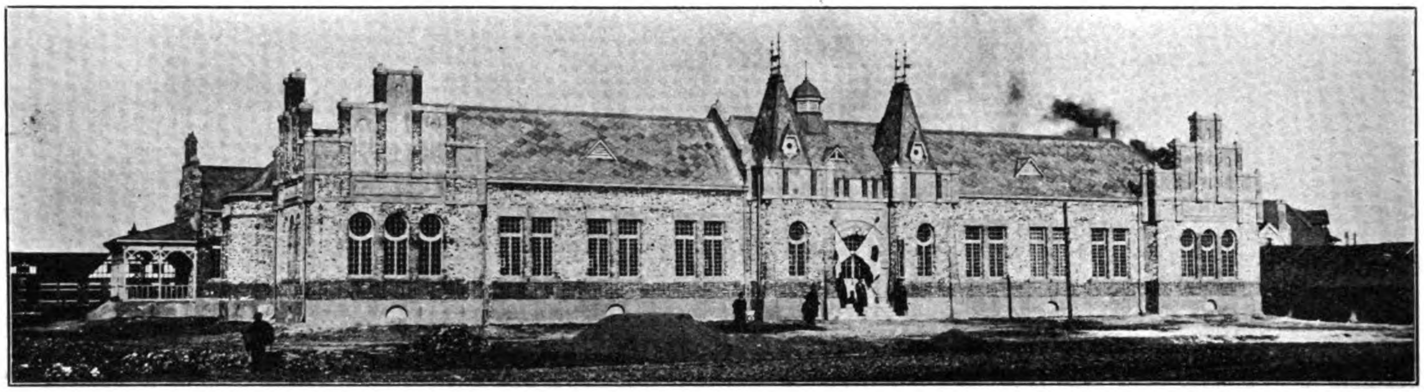
Months.	*Quantities mined.*	*Quantities sold.*	*Quantities consumed by Comp.*
January	23,374	6,919	12,110
February	17,635	7,082	18,247
March	27,082	13,674	24,093
April	27,802	5,748	21,033
May	31,425	7,623	19,512
June	33,504	10,079	30,402
July	37,048	10,107	36,807
August	34,476	8,847	20,829
September	40,274	14,486	23,429
October	42,806	5,739	18,792
November	44,094	20,075	17,003
December	52,627	19,070	17,221
	437,084	132,482	259,388

The Mining Department of the South Manchuria Railway Co. announces that orders will be filled anywhere along the South Manchuria Railway lines on 2 days' notice at the farthest and that special facilities are provided on the Dairen Wharves for the prompt supply of bunker coal to the vessels whenever required.

Of the building work carried out at Fushun just before the winter may be counted the completion of the General Office for the Colliery besides the official's and workmen's quarters. Equipments for electric light and steam heat were almost perfected. An extensive reservoir can now draw from the River Hun 3 miles away a constant supply of water as good as found anywhere else. The building of a gas-work will be started this year as soon as the machinery and other materials arrive. Other sundry improvements are in project for the Colliery Town. Again, for the benefit of visitors, a plan has been drawn up for a comfortable European hotel, which is expected to be ready by the end of the year, the ground having been already levelled. Further, before the year closes, a new railway station will be built at a more convenient site than the present temporary one.

As to the mining proper, we are now raising about 1,700 tons a day. The mines that are being worked at present are of a temporary nature and are in future to be superseded by the two pits, named Oyama and Togo, which were planned out with every up-to-date equipment and which, when completed, will be capable of putting out 5,000 tons in all per day.

Each pit is to consist of two shafts, 1,100 feet deep, and the sinking operation is progressing as favorably as could be desired.



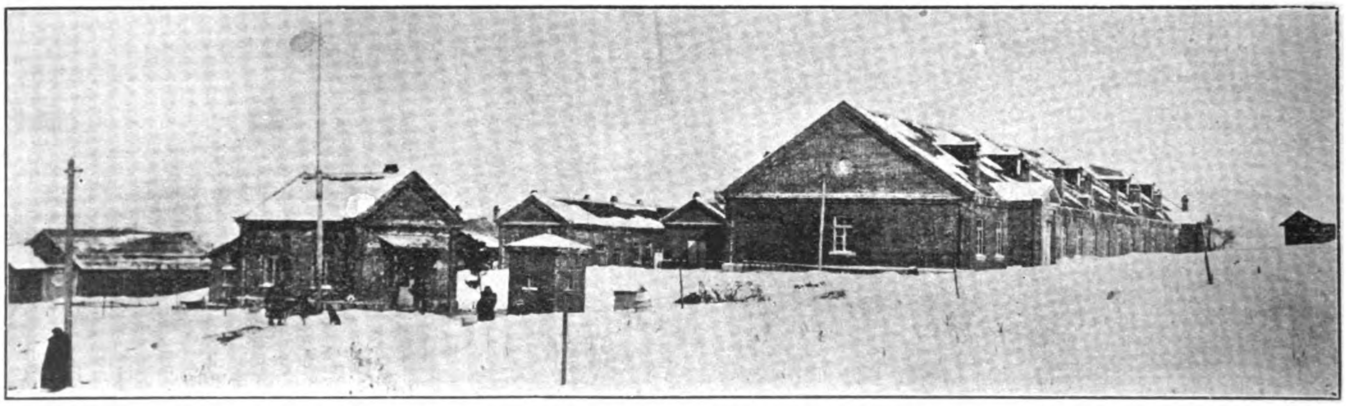
FUSHUN COAL MINES: COLLIERY HOSPITAL AT CHIEN-CHIN-CHAI

FUSHUN COLLIERY: RESERVOIR WITH VALVE CHAMBER. IT DRAWS SUPPLY FROM THE HUN RIVER THREE MILES NORTH-EAST

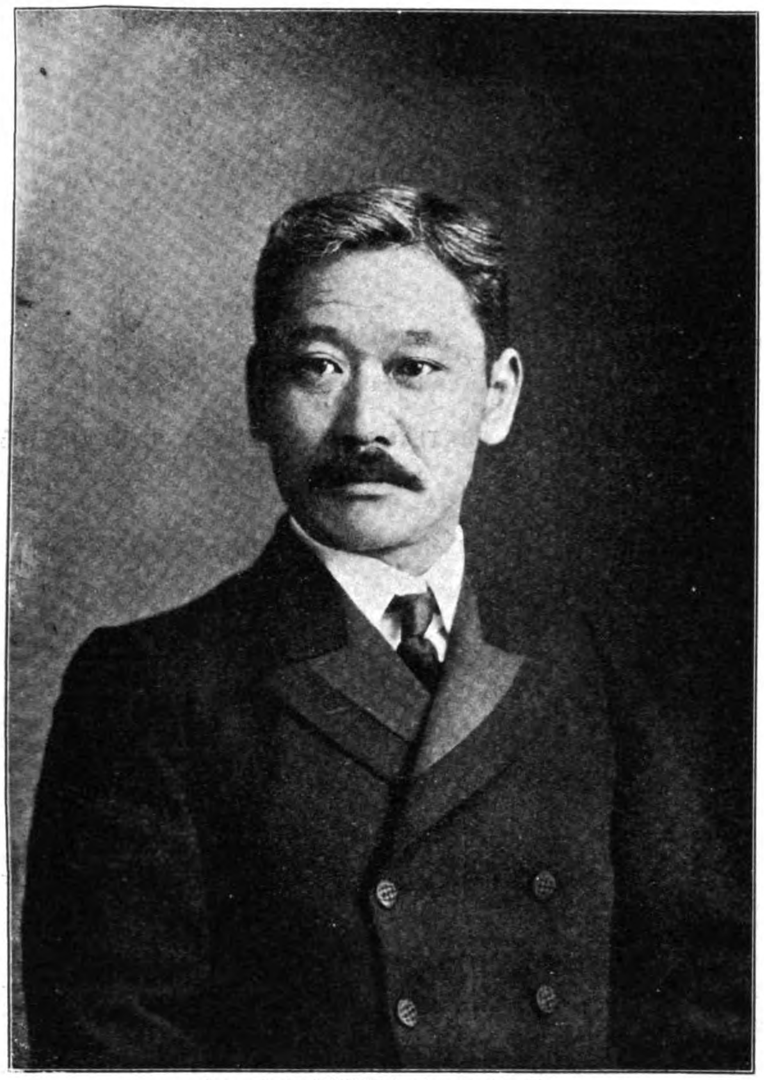
COALITE*

Few industrial departures of recent years have aroused more interest, both in economical and scientific circles, than the invention of Coalite—a fuel designed at once to remove the smoke nuisance and to annihilate waste by preventing the escape into the atmosphere of smoke and soot—the baneful results of incomplete combustion. During the eighteen months which have elapsed since the original announcement of the discovery was made the position of the enterprise has, we are informed, been progressively strengthened, and the manufacturers have been quietly and busily at work defining the large economies in labor, time, and fuel associated with its production. There has been little stir in the industrial world during this period of preparation, and people who are apt to forget that "Rome was not built in a day," and are ignorant of the fact that the time required for the establishing of new undertakings is in direct proportion to their magnitude, are

* Mining Journal.

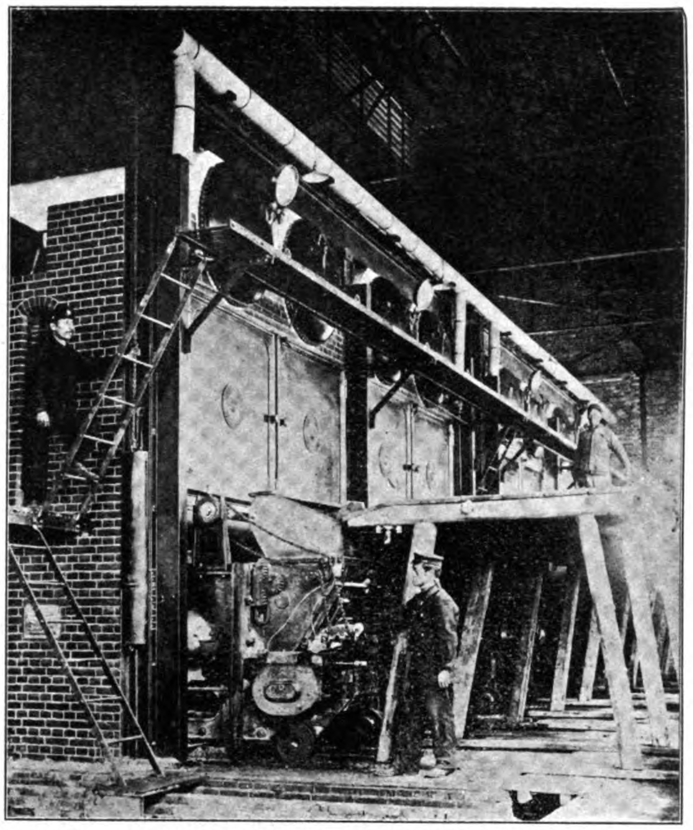


FUSHUN COAL MINES: BARRACKS FOR LOCAL GARRISON OF THE RAILWAY GUARDS, WITH GUARD HOUSE IN FOREGROUND, AT CHIE-CHIN-CHANI, FEB., 1908



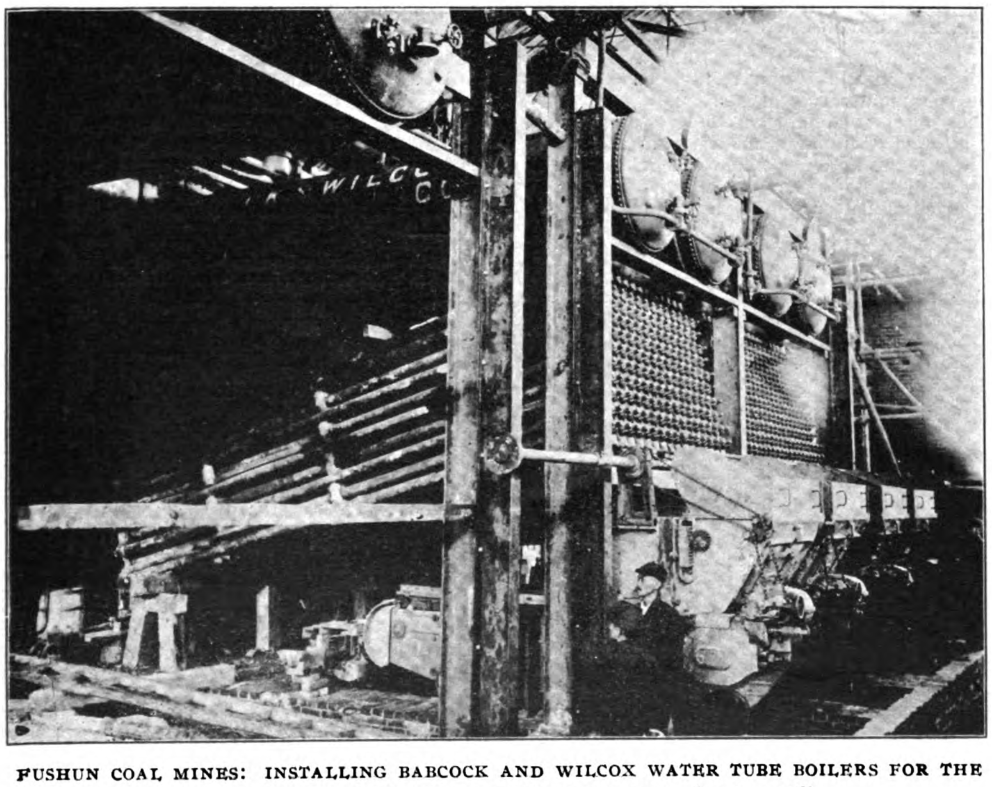
DR. B. MATSUDA, M. I. M. E.
CHIEF ENGINEER, FUSHUN COLLIERY

In following up the original discovery, fresh discoveries of a most important character have been made, leading to additional economies, and a method of producing coalite at once cheaper, more consistent, and more fruitful. The time occupied in development of this character is time well spent. To capture the markets of Britain with a new fuel is a stupendous proposal, the ultimate success of which will depend upon adequate measures of preparation. A false start—the creation of a general demand



COAL HANDLING MACHINERY AT THE FUSHUN MINES

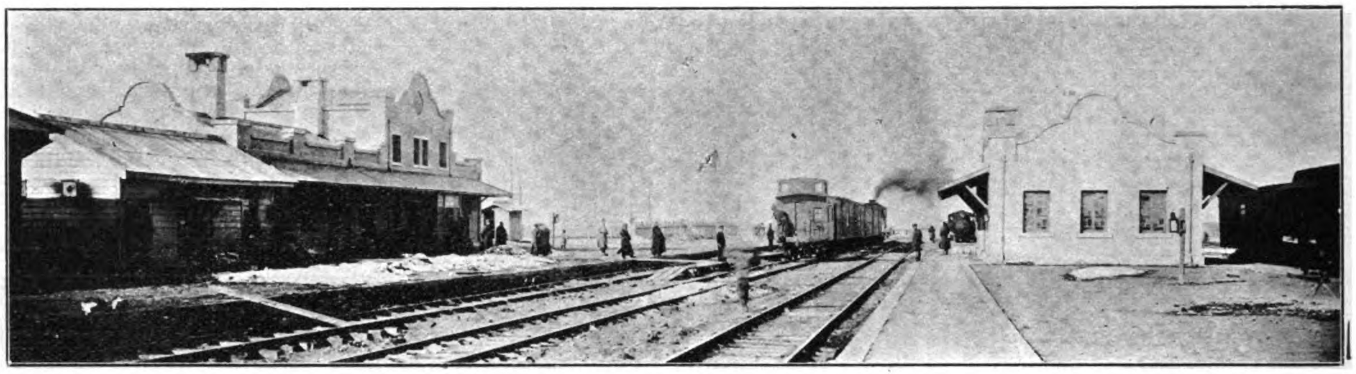
asking why, in view of its manifold advantages, Coalite is not yet in possession of the fuel market. The fact is that the Coalite enterprise has grown considerably beyond its original limits during its brief career. Sanguine as its influential sponsors were on the eve of its initiation, time and reflection were required in order to determine the full extent of its possibilities.



FUSHUN COAL MINES: INSTALLING BABCOCK AND WILCOX WATER TUBE BOILERS FOR THE ELECTRIC POWER HOUSE AT CHIEN-CHIN-CHAI, (OCT., 1908)

for Coalite as a result of the recognition of its advantages at a time when the sufficient scale of its manufacture was not assured—in other words, to call into existence a demand outstripping the dimensions of the supply—would spell disaster, or at least a ruinous delay. It is to the assurance of this supply to meet the anticipated demand that the efforts of the directors have hitherto been successfully directed.

The manufacture of Coalite necessitates a form of plant entirely different from that in use in connexion with any other known coal-distilling process. Letters Patent have been granted for the invention not only in the United Kingdom, but in Germany, the United States of America, and all the principal foreign countries and British Colonies throughout the world. Coalite is produced at a relatively gentle temperature in a retort, or still, composed of a group of tall iron tubes, each 6 ins. in diameter, fixed closely together in one block, thus effecting considerable economies of space. These retorts when in use are placed in a vertical position, in contradistinction to the horizontal stills of the gas manufacturer; and the heavy doors, or lids, by which charging is effected are opened and closed mechanically. At Wednesfield, where a unit plant of twenty-four retorts—in all 24 by 12 tubes—can be seen in operation, a daily product of 300,000 cubic feet of gas, and of about 40 tons of coalite is effected in an area of 40 ft. by 20 ft. Owing to the low degree of heat, which is the essence of the process, the strain thrown upon the plant is reduced to a minimum, and thus at the outset of the manufacture space and "wear and tear" represent an enormous saving. The economy in labor is also great, it being estimated that in the work of supervising the retorts eleven men can replace the thirty employed in the treatment of an equivalent amount of material in the work of gas production. The novelty of the process, necessitating a novelty in the

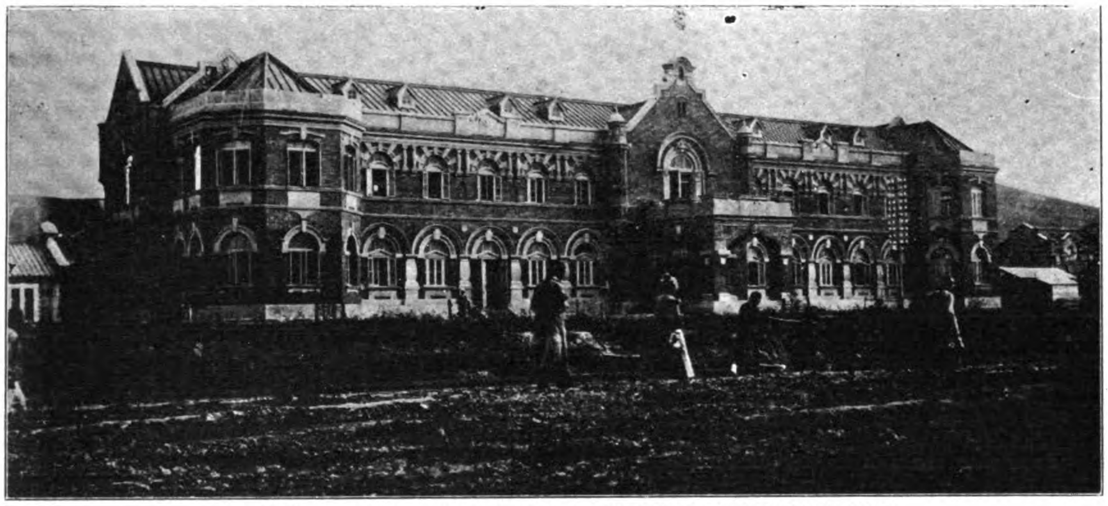


FUSHUN COAL MINES: SUCHIATUN JUNCTION STATION, WHERE THE RAILWAY BRANCHES FROM THE MAIN LINE TO THE MINES

apparatus, has rendered it inexpedient to rely upon the ordinary sources of supply in the matter of plant, and the foundry at Wednesfield is capable of turning out two plants per week, while the company is now engaged upon the construction of a second foundry of equal dimensions. In addition, the Barking works, which will be the centre of the London supply, have already begun operations, and since a large and valuable area of land has been secured there is every facility for a very rapid extension of the works by installing additional units as turned out by the foundry at Wednesfield. A river frontage of about a mile ensures magnificent wharfage accommodation, which will simplify on the one hand the disembarkation of supplies of coal from the north, and on the other the distribution by river carriage of the finished product. The supply of Coalite is thus assured, and when it commences to supplant the common fuel its progress will be uninterrupted by any hitch in the smooth operation of supply and demand.

The essential difference which marks out Coalite from other forms of coal distillation is a question of degree in the temperature at which it is produced. Hitherto the object of subjecting coal to treatment by heat has been the manufacture of gas, and since, within certain limits, the greater the temperature the larger the quantity of gas, heat has been forced up to a point which throws a great strain upon the plant at the same time that it seriously diminishes the value of the by-products. Nearly a quarter of a century ago the great chemist Armstrong propounded the fundamental question whether "the gasmaker is right in his present method of heating coal. Would it not be better to deal with it so as to produce a larger proportion of residuals and a different class of coke?" This question has been answered by the Coalite manufacturers emphatically in the affirmative. They say that their method of production is more economical and therefore superior; that it produces a gas of a much higher candle-power and greater calorific equivalent, a fuel that is derfect as regards its burning and heating power and blameless as regards smoke, and tar of so immensely superior a quality that it is quite a different substance—different in its specific gravity and in the valuable oils which are produced from it by processes mainly physical in character. As a commercial article the last-mentioned product is a veritable gold mine. No more fascinating chapter exists in the scientific record than the seeming necromancy by which the chemist has converted this black and turbid liquid into a variety of valuable materials, indispensable to civilized life, and the process by which Coalite is made turns out this by-product in a greater profusion and of a finer quality than any which result (accidentally) from the manufacture of gas.

This brief sketch of an undertaking which has aroused widespread interest and seems now to be at the commencement of its practical career will serve to remind the investing public of its leading features. At the annual meeting, which will shortly be held, it is expected that an interesting statement will be made as to the present position of the undertaking.



GENERAL OFFICE OF THE FUSHUN COLLIERY, CHIEN-CHIN-CHAI

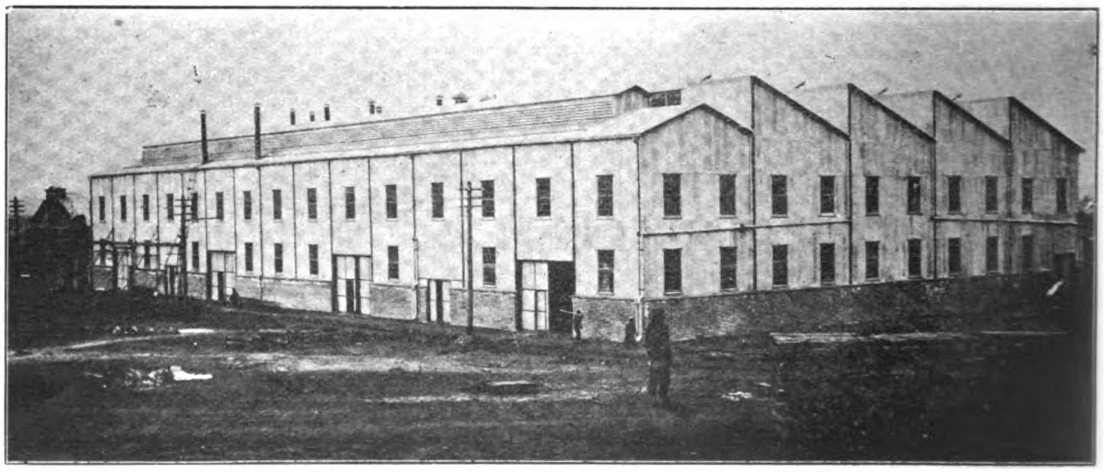
PORTLAND CEMENT FOR USE IN THE TROPICS

By Richard K. Meade*

Under the title "Portland Cement Testing," there appeared in "The Philippine Journal of Science," of June, 1908, a paper by W. C. Reibling and L. I. Salinger, of the Chemical Laboratory of the Bureau of Science, Manila, P. I. This paper was abstracted very fully in *Engineering News* of December 3, 1908, p. 612, under the heading, "The Testing of Portland Cement for Use in the Tropics." The conclusions drawn by the authors of this paper are that Portland cement to be used in the tropics, and more particularly in the Philippine Islands, should have a markedly different composition from that used elsewhere.

It seems to the writer unfortunate that this paper should have been so widely circulated or should have come from a government source. The danger of publications issued under the approval of the government is that they will be extensively used by one manufacturer to injure the trade of another and to foster his own interest. In this particular instance we believe that there will be a number of points in the paper on "Portland Cement Testing" which will be very promptly seized upon by the unscrupulous manufacturer to damage the trade of a worthy competitor. The individual government employee at all times has the right to express his opinion, but when he does so over his official position with the government, his utterances assume judicial importance without, as is the case with legal decisions, being subjected to a possible final reversion by a higher court, if found to be in error. That much of the investigating now done by the government is of the highest type of research work and likely to lead to practical results no one will dispute but, at the same time, bulletins and other publications should be carefully reviewed by competent boards or submitted to acknowledged authorities before being allowed to appear as government documents or to be published as "contributed from" government laboratories.

*Chemist, Dexter Portland Cement Co., Nazareth, Pa. in the *Engineering News*, Vol. 61, No. 14.



FUSHUN COLLIERY: MACHINE SHOP, CHIEN-CHIN-CHAI

The authors of this paper on "Portland Cement Testing" are, judged simply by their own production, men of very limited experience with and knowledge of the properties of Portland cement, otherwise they would have stated many of their assertions very much less vigorously and very much more reservedly, and some of them not at all, as trite and covering ground already well gone over. Perhaps the first thing that the chemist who investigates cement finds with experience is that conclusions of a positive nature about this very complex substance are very dangerous things to draw, and, as "one swallow does not make a summer," so one series of experiments can not be used to devise a law for the behavior of Portland cement.

The opening part of this report may be passed over lightly. The discoveries which the authors have made in the first pages are those which any observing embryo cement tester promptly finds out for himself, the effect of the percentage of water used and the influence of temperature upon the rate with which cement hardens, the fact that the lumpy cement will not give as high test as one free from lumps, the effect of aeration upon the setting time of cement, etc., have all been fully investigated by chemists and engineers of every land.

High Alumina Cements.—The part of their report which probably will excite most interest and also do most harm is the attempt to show that a special cement is demanded to withstand the climatic influences of the Philippines. The authors have devoted a large part of their paper to a discussion of high alumina cements, and have attempted to prove by a number of experiments, by references to the publications of other cement investigators, the writer included, and by some deductions of their own of a purely theoretical nature, that cement containing more than 7% alumina is unsuited to use in the tropics. As the present writer has had a wide experience with both high and low alumina cement, and also with cements which became quick setting upon storage, his conclusions along this line may be of interest to the readers of *Engineering News*. These conclusions are based, not upon a few experiments made with one or two brands, but upon a large number of experiments made with a number of brands, and also as the result of the examination of the laboratory records of quite a number of Portland cement manufacturers. This information published at this time may also do something to offset the effect of the publication of the paper mentioned.

It is true that alumina influences to a considerable extent the rapidity of the set of Portland cement. It is, however, not the only component which does this. It is also true that fixed limits in an analysis can seldom be adhered to, because it is not so much a case of the actual percentage of essential elements, silica, lime and alumina present as of their relative proportions and the way in which they are combined with each other. For instance, we have seen high silica cements made from sandy clay and limestone which had the properties of low silica cements. The reason for this was simply that a certain part of the silica never combined with the lime at all to form hydraulic compounds, but remained in the cement merely as inert silica. If we deduct this silica, we find that the actual amount of silica which has gone into solution bears about the same ratio to the lime and the alumina as that in some low silica and high alumina cements. Portland cements which contain high percentage of alumina are *apt* to be quick setting or to become so on aeration. This does not necessarily mean, however, that they *will* be quick setting or that they *will* become so, because there are a number of methods which can be adopted to prevent this One of them is having in the cement a higher percentage of lime than would be carried in an ordinary cement. While it is true that the combining proportion of silica is greater than that of alumina it is also true that alumina cements are very much more easily burned, and hence it is possible to carry very much more lime in the cement and still burn it thoroughly. A cement which contains a *very* high percentage of alumina would be very hard to burn uniformly because it would burn at a lower temperature and would stick and ring badly in the kiln. This, however, would not apply to cements of average composition. High alumina cements show very much greater early strength and as high ultimate strength as do high silica cements, and they are more apt tobe so und.

The greatest objection that has been raised to the high alumina cements is the fact that they do not show a progressive strength when tested neat, that is, their strength when tested neat after 28 days will be very little if any higher than their strength at 7 days. This is a point, however, which should not be considered as against high alumina cements because it enables the contractor, not only to remove his forms promptly, but also in cold weather to carry out construction work which it would be hard to do properly with a slow-setting cement, owing to the difficulty of keeping the concrete from freezing when used in floors and thin partitions. There seems to be no good reason either why a cement should be expected to show a progressive gain. A railroad company would not consider a steel rail any the better for the fact that it had a low strength when it was put in the track and a high strength 28 days thereafter. They would much prefer it to have a high strength when they laid it. The same reason holds perfectly good for concrete, and as long as the cement does not retrogress there is every reason why the cement which gets its full strength soonest should be the one to have the preference. Strange as it may seem, however, this most common objection to high alumina cements was not raised in the paper of Messrs. Reibling and Salinger, and they confine themselves almost entirely to the effect of high alumina upon the setting time. They even go so far as to state that high alumina cements have one laudable feature in that they are perfectly sound (a good recommendation if true), and that perfect soundness is essential in the Philippines.

Perhaps no property of Portland cement is so changeable or for that matter so hard to test as the setting time. The present writer's experience has been that even a very experienced cement tester, when working with the Gilmore needle, seldom gets pats made up on different days and practically under the same condition to agree in setting time, and this difference sometimes has amounted to as much as from 30 to 60 minutes. This is not altogether caused by any change which has taken place in the setting time of the cement, but rather to the fact that very minute variations in the percentage of water, time of working, and temperature of the air, etc., will often affect the setting time considerably.

It is a well-known fact to those who have worked with cements containing between 6½ and 8½% alumina that these cements when of certain composition will on exposure to air become quick setting. A bin of such cement freshly ground may have a setting time of three or four hours, and after three or four days a sample drawn from this bin itself may show a setting time of only a few minutes. It sometimes happens that another sample drawn a week later will again be slow setting, and still another sample drawn still later will be again quick setting. This changeable set is not altogether due to heat and humidity, although it is much more apt to occur in warm weather than in cold, but it does occur in cement ground in mid-winter if the same has not been properly proportioned.

A large number of engineers are familiar with the term "hydraulic index," as applied to cements. It is not very definite, but usually means the relation between the lime on the one hand and the silica and alumina on the other or expressed as a fraction:

$$\text{Hydraulic Index} = \frac{\%\ \text{Silica} \times \%\ \text{Alumina}}{\%\text{Lime}}$$

This formula has to some extent been superseded by that of Newbery and that of Le Chatelier. The writer's experience, however, has been that the old hydraulic index is as near an expression of the proper composition of cement as we can get with our present knowledge of the chemical structure of this complex solid solution. This belief has been strengthened of late years by the work of Messrs. Day and Shepherd of the Carnegie Institute, who have found that the compounds prepared by Newbery and Le Chatelier and used by them as the basis of their formulas are non-existant and that what these experimenters believed to be tri-calcium silicate was nothing more than a solution of lime in orthosilicate. Any formula, therefore, which endeavors to give in mathematical terms the proper composition of cement would probably merely set the percentage of lime dissolved in the magma, as for example, a 15% solution of lime, so that for the purpose of this discussion we can go back to our old "hydraulic index."

While it is true as has been stated that silica combines with a greater proportion of lime than does alumina, it is also true that alumina makes a more fusible clinker and one which will hold in solution a large amount of lime. This is shown by the fact that so far as practical composition goes, the high silica cements contain no more lime than do low silica ones. (See Table I.) Nor it has been the writer's experience with these cements that it was possible in them to carry a higher percentage of lime than was possible with the low silica and high alumina ones.

Returning to our hydraulic index we find certain marked properties go with it. The lower the hydraulic index the more strength the cement will have. On the other hand if a certain limit is passed, the cement will be unsound. This limit depends upon a number of manufacturing conditions, such as the fineness to which the raw materials are ground, the degree of burning, and the amount of seasoning which the cement can be given before its shipment. The highest testing American cements are cements with low hydraulic indexes. The higher the hydraulic index the less strength the cement will have. As the hydraulic index increases we notice with high alumina cements a tendency for them to be quick setting or to become so upon storage. As an example of this, with one of the leading brands on the market, tests of more than 100,000 barrels show that all the slow-setting cement had a hydraulic index below 0.47 and that all cement which either was quick when manufactured or became quick on storage had a hydraulic index above 0.47.

There is another ratio besides the hydraulic index, which affects the properties of cement to a marked degree. This ratio the author has always called the "index of activity" and is the ratio between the silica and the alumina or expressed as a fraction:

$$\frac{\%\ \text{Silica}}{\%\ \text{Alumina}} = \text{Index of Activity.}$$

In most American cements this index is above 2½ and in some cases is as high as 4½. When below 3 there is possibly a tendency for the cement to show the quick setting properties which we have mentioned. At the same time, there are practically very few American cements which rise above 3, and the vast majority of them lie between 2.5 and 2.75, with occasionally here and there one as low as 2.4.

These two indexes do to some extent control the properties of cement, but they are not sufficient alone for even the most experienced cement chemist to predict the properties of a cement.

TABLE I.—ANALYSES OF REPRESENTATIVE AMERICAN CEMENTS.

	Where made	Made from	Silica.	Iron oxide.	Alumina.	Lime.	Magnesia.	Sulphur trioxide.
1	New Jersey	Cement Rock and Limestone.	21.82	2.51	8.03	62.19	2. 7	1.02
2	Pennsylvania		22.20	2.27	6.69	62.61	3.00	1.56
3	Pennsylvania		20.32	2.58	7.30	63.93	2.57	1.27
4	Virginia	Limestone and Clay.	21.31	2.81	6.54	63.01	2.71	1.42
5	Michigan		20.74	2.85	7.17	62.64	1.97	1.42
6	California		25.38	1.20	3.34	62.96	1.20	0.35
7	Mexico		20.16	2.05	6.33	63.27	3.04	1.80
8	Alabama		20.54	3.84	8.55	63.85	0.66	.....
9	Michigan	Marl and Clay.	21.12	3.59	7.55	63.35	0.81	1.56
10	Ohio		21.41	2.15	6.88	62.72	1.44	1.57

Manufacturing conditions will also play an important part in this. The percentage of iron and of magnesia must affect the properties, if in no other way by influencing the combination of one element with the other. Unless magnesia is present as an oxide, it must take the place of a certain amount of lime in combination with silica, unless iron too is present as an oxide, it must take the place of a certain amount of alumina in combination with the lime, etc. There does seem to be this fact, however, fairly well established that there is a certain relation between the "hydraulic index," the "index of activity" and the setting time of cements. With cements having a low index of activity the setting time can usually be increased by lowering the hydraulic index. Cements with a high index of activity can often have a very high hydraulic index and still be slow setting, while a cement with a low index of activity and a high hydraulic index will set rapidly. At the same time at one mill, the chemist may carry his hydraulic index and index of activity at the same figure as his neighbor and yet have trouble with the setting time of his cement which his neighbor never has, due to manufacturing conditions. As an illustration with small experimental kilns burning the same mixture as the large ones the resulting cement is often quick setting from the former and normal from the latter, etc.

In Table II are a few examples showing the relation between the indexes, etc. Nos. 1, 2 and 3 are samples of the same brand of cement. No. 1 became quick setting after seasoning one month in a small paper bag, although it had practically the same index of activity as No. 2 and a much higher index than No. 3. No. 2 and No. 3 both have normal set even after one month's such seasoning. No. 1 has a high hydraulic index, Nos. 2 and 3 have low hydraulic indexes. Similarity No. 4 and No. 5 are average samples of two lots of several thousand barrels of cement from different works. No. 4 had a normal set after a month's seasoning, No. 5 became quick setting in this time. No. 5 has less alumina and more silica than No. 4, but the latter has a much lower hydraulic index, which explains the difference in behavior. No. 6 has more alumina than any cement in the table. Its index of activity, however, is high and the small percentage of iron no doubt permits of the high hydraulic index. At the end of a month it still had a normal setting time. No. 7 is a⁻ example of a low alumina cement which became quick setting on seasoning, while No. 8 did not do so. Again it is probably a case of hydraulic index. No. 9 has the same hydraulic index as No. 10, and is from the same mill. No. 9 became quick setting after a few weeks seasoning, while several months' storage in a small paper bag in the laboratory had no effect upon No. 10. No. 9 was made from coarsely ground raw material and was unsound when fresh but seasoned sound. Considerable (3.60%) silica separated out on solution in acid, showing free silica in the cement. If we deduct this silica from the total and calculate the ratio between the remainder and the alumina we find an index of activity of only 2.35. The above show the difficulty of predicting, from the percentage of alumina only, just what properties a cement will have.

TABLE II.—ANALYSES OF QUICK AND SLOW SETTING CEMENTS.

No.	Silica.	Alumina.	Index of Activity.	Iron Oxide.	Lime	Hydraulic Index.	Magnesia.	Sulphur trioxide.
1*	20.76	8.12	2.56	2.20	60.66	0.48	3.10	1.55
2	20.30	7.80	2.60	2.18	62.99	0.45	3.16	1.55
3	19.92	8.32	2.40	2.22	63.41	0.45	2.70	1.40
4	19.52	7.50	2.60	2.80	62.31	0.43	3.05	1.61
5*	22.02	7.44	2.96	2.28	61.71	0.48	2.88	1.56
6	23.18	8.44	2.75	1.02	63.66	0.50	1.40	1.52
7*	24.12	5.44	4.43	3.22	60.50	0.49	2.46	1.84
8	22.90	5.24	4.37	3.14	62.74	0.45	2.58	1.65
9*	19.92	6.94	2.87	3.48	61.72	0.43	3.44	1.68
10	20.18	7.22	2.80	3.35	61.27	0.45	3.36	1.62

Returning now to the paper by Messrs. Reibling and Salinger, we find that only one of the cements which became quick setting contained sufficient sulphur trioxide (SO_3), or as it is commonly called, sulphuric acid. Probably the first comment which an experienced cement chemist, or even one familiar with the usual composition of Portland cement, would make upon seeing the analyses given in Table VII of their paper and also those in Table XXVI (see Table III of the present article) would be that the cement had not had added to it enough gypsum or plaster of paris. It is hardly necessary here to do more than call attention to the fact that Portland cement clinker if ground fresh from the rotary kiln without any addition whatever would set too quickly for ordinary use. It has, therefore, been found necessary to add to this plaster of paris in order to delay the set of the cement sufficiently to allow of its being properly worked. Practically all American cements and most of the foreign ones contain between 1 and 1.75% sulphur trioxide. Of the cements whose analyses are given by Messrs. Reibling and Salinger only one, No. 5, contained sufficient sulphuric acid, and this cement did not become quick setting until after it had been exposed to the air for "such a very long time" that it had united with 6.36% water and carbon dioxide.

*These cements became quick setting on seasoning in the laboratory one month or less.

TABLE III.—ANALYSES OF CEMENTS TESTED BY MESSRS. REIBLING AND SALINGER. (Table XXVI of their paper.)

No.	Silica.	Iron Ox.	Alumina.	Lime.	Magnesia.	Sulphur trioxide.	Loss on ignition.	Hydraulic index.	Index of Activity.
1	20.65	3.07	8.57	61.83	2.26	0.51	2.47	0.47	2.41
2	20.70	3.01	8.42	61.60	1.94	0.59	2.76	0.47	2.42
3	22.00	3.0	8.9	59.9	1.55	....	5.3	0.52	2.48
4	20.52	2.65	8.71	61.30	1.96	0.46	4.33	0.48	2.36
5	21.28	2.29	6.95	61.08	0.21	1.17	6.36	0.46	3.06

Studying the analyses (see Table III) also in the light of the information given above as to the effect of the index of activity and hydraulic index upon the properties of cement we see that these cements, with one exception, have fairly high hydraulic indexes for high alumina cements, and that the only one of them which has a low hydraulic index, is the cement (No. 5) above referred to, so that it really narrows down to the point that of all the cements upon which they based their conclusions as to alumina it is possible that only one was of normal composition. The other four cements whose analyses are given do not contain sufficient sulphuric acid to give them the proper setting time under any and all conditions, and also a lower hydraulic index would improve, unquestionably, this setting time after seasoning.

The error made by these chemists in attempting to draw conclusions relative to composition from such a series of experiments is shown more conclusively to the engineer perhaps by Tables IV and V, herewith shown. The first is taken from the author's note-book and shows the analysis of five recognized leading brands of Portland cement from the Lehigh district. The second table is taken from the mineral resources of the United States for 1904, and gives the characteristic analysis of American Portland cements. The five analyses given in Table IV are all those of cements which have a reputation among engineers and architects for their uniformity of set, strength, and general good properties. It will be seen that not one of them will pass the specifications for chemical composition drawn up by Messrs. Reibling and Salinger. The brand of cement of which No. 5 is a representative analysis never contains less than 7% alumina. From 20,000 to 50,000 bbls. of this brand are shipped every year to Central and South America, to Cuba, Porto Rico, and Mexico. Of all this quantity of cement, we know of not one instance where a complaint was made that the cement set other than normally. Practically all of these cements, in fact, have been exported largely. Cement No. 3, of which the analysis is probably slightly higher in alumina than it will generally show, is used almost exclusively for sidewalks and ornamental concrete work, and its popularity along this line lies almost entirely in the fact that its setting qualities are very uniform, even in hot humid summer weather.

TABLE IV.—ANALYSES OF LEHIGH VALLEY CEMENTS.

No.	Silica.	Iron Ox.	Alumina.	Lime.	Magnesia.	Sulphur trioxide.
1	19.52	2.80	7.50	26.31	3.05	1.61
2	21.82	2.51	8.03	62.19	2.71	1.02
3	20.76	2.20	8.12	62.80	3.06	1.55
4	20.32	2.18	7.80	62.99	3.16	1.45
5	20.02	2.28	7.64	62.31	2.88	1.56
6	21.14	2.14	7.10	62.64	1.97	1.42

It will be seen from Table V that the average alumina in American Portland cements is about 7½ per cent. The average setting time reported by the St. Louis laboratory upon all this cement was 145 minutes (or 2¼ hours), and strange to say the slowest setting time, 260 minutes (or 4½ hours) was obtained on the limestone and blast furnace slag cement, containing 8¼% alumina. The conditions of use were such that if the cement had developed quick setting properties, this latter would have been detected.

TABLE V.—AVERAGE CHARACTERISTIC ANALYSES OF AMERICAN PORTLAND CEMENTS

Made from.	Silica.	Iron Ox.	Alumina.	Lime.	Magnesia.	Sulphur trioxide.
Limestone and cement rock	22.07	2.50	7.51	62.82	2.58	1.51
Limestone and clay or shale	22.18	3.49	7.31	62.80	1.62	1.39
Limestone and slag	23.62	2.71	8.21	61.92	1.78	1.62
Marl and clay or shale	22.36	2.68	6.93	63.37	1.99	1.31
Average	22.56	2.85	7.49	62.73	1.99	1.46

Table VI shows the analysis of six foreign brands which have been shipped to almost all parts of the world, and all climates. The first two German cements are famous export brands and we have never heard of their becoming quick setting in the tropics; in fact, one of the strongest claims made for these German cements is their uniformity and regularity of setting time.

The paper in question tells us among other things that the difference between the local climate of Manila and that of temperate climates exerts very little influence upon the usual standard tests themselves. It is, therefore, very safe to estimate that cement which gives proper tests in this country will also give proper tests in the tropics. We are also told that in general the temperature is conducive to slightly better results, that the soundness tests are benefited "as the cement does not suffer as great a change in temperature, and hence expansion and warping is not so much marked." Considering the fact that the maximum temperature in the Philippines is hardly more than 100° F., while the temperature of boiling water is 212° and the temperature in this country on a warm day is sometimes 93° and 94°, the present writer is somewhat skeptical of this beneficial effect. We are also told that "climatic conditions improve the characteristics of early tensile strength of most cements, as the variation in temperature from day to day and from hour to hour is only slight, the temperature of the water bath is higher than in cold climates, and the temperature during gaging is also higher." This we can readily understand and believe would be conducive to good early tensile strength tests. We are also told that the relatively higher temperature of this climate will seriously affect the setting qualities of some cements. This, of course, is nothing more than has been observed in this country that cement tested in the warm laboratory very often sets rapidly and yet can be used for work in early fall without showing any inconvenient properties along this line. The authors, however, tell us that Portland cement is most affected by local climatic conditions *before* and not *after* it is gaged,

high temperature and the alternating humid dry atmosphere are conditions under which hydration and carbonization are accelerated. In consequence the majority of commercial products must be especially prepared to withstand tropical climates. Portland cement is very susceptible to changes under these conditions, and it is therefore essential to the best practice that cement for use in the tropics should develop no dangerous properties by the absorption of water and carbonic acid in normal quantities. The cement problem of tropical countries depends for its solution upon the characteristics of Portand cement; and our efforts have been to determine what class of cements are most affected by exposure and seasoning.

Unfortunately the authors did not carry out this program but endeavored to determine from tests made of one brand of cement; or certainly of one class of cements, since all of their analyses show very much the same characteristics, what cement was best suited to tropical conditions. We must confess that we can hardly see how cement can absorb any more water because of an alternately dry and humid atmosphere than it will in a humid one. Messrs. Reibling and Salinger's own analyses do not indicate that this is the case. Let us take their cement No. 8. This they divided into two samples, one of which they placed in a tin can and one in a paper bag. The sample in the tin can of course absorbed practically no water and carbon dioxide, that in the bag took up some and became quick setting. The difference between the two amounted to 0.92%. Samples of cement exposed in paper bags in the present writer's laboratory, for various lengths of time absorbed water and carbon dioxide as follows:

TABLE VI.—ANALYSES OF "EXPORT" BRANDS OF FOREIGN CEMENTS.

Brand.	Silica.	Iron Ox.	Alumina.	Lime.	Magnesia.	Sulphur. trioxide.
Alsen, German	20.48	3.88	7.28	64.03	1.76	2.46
Dyckerhoff, German	20.64	3.69	7.15	63.06	2.33	1.39
Lagerdorfer, German	23.55	2.40	7.47	61.99	1.42	1.07
Josson, Belgian	22.92	2.46	7.98	63.39	trace	1.28
Candlot, France	22.30	3.50	8.50	62.80	0.45	0.70
K. B. & S.	19.75	5.01	7.48	61.39	1.28	0.96

Fresh .... total 1.86
After 7 days, increase 1.10%, total 2.96
After 14 days, increase 1.42%, total 3.28
After 21 days, increase 1.72%, total 3.58

This is much more in seven days than Messrs. Reibling and Salinger's cement had absorbed after eleven days. When fresh from the mills it had a setting time of 2 hours and 5 minutes, and at the end of 21 days of 1 hour and 45 minutes. This is about the normal rate of absorption in this section of the United States (Eastern Pennsylvania) for the fall of the year and for Lehigh Valley cements. Finely ground cements will absorb more water than coarsely ground ones, and more water will be absorbed in warm than in cold weather. Analyses of their sample No. 8 and of the Lehigh valley cement above referred to are given below:

	R. & S. No. 8.	Lehigh Valley.
Silica	19.80	20.06
Alumina	8.33	7.32
Iron oxide	2.75	2.20
Lime	62.44	61.20
Magnesia	2.25	3.09
Moisture	0.32	0.40
Loss on ignition	3.14	3.18
Sulphuric acid	0.43	1.49
Hydraulic Index	0.45	0.45
Index of activity	2.38	2.74

As the hydraulic index of the first of these cements is low (0.45) it seems probable that if it had contained as much sulphur trioxide as the second its setting properties would be all that could be desired and it also seems probable that an addition of sufficient plaster of paris to the sample to bring the percentage of sulphuric acid up to that of the Lehigh Valley cement would also slow its set and permit of its being used.

It may also be of interest to note here that those cements which set rapidly may often have their set slowed by the addition of quick lime to the water used to gage the cement or else hydrated lime to the cement itself. When cement becomes quick setting from exposure to the atmosphere it would therefore seem to be a much better practice to slow the set of the material by addition of a little hydrated lime to the cement or by dropping a few lumps of lime in the barrel of water used for gaging rather than to condemn the cement.

Aeration.—This brings us to another point. Has any one a right to set a small sample in the warm and usually moist air of a laboratory and because the sample after such storage for a month becomes quick setting condemn a carload of cement in a warehouse as likely to develop dangerous properties? If cement will aerate enough in a day to develop quick setting properties, it probably would be cause for grave concern. If the sample takes a week or more it is certainly safe to assume that the main body of the cement will not develop any such properties unless kept for a very long period. The surface exposure of a sample of cement in a small paper bag is so enormously out of proportion to that of cement in cloth bags piled in a warehouse, that the two hardly have any relation to each other. For instance, it frequently happens that a sample of unsound cement left in the laboratory a few days will pass the boiling test, while the stock from which it is drawn may lay in the warehouse for as many months before a new sample freshly tested will do so.

Laboratory tests of material after all have considerable limitation, to which the engineer and chemical engineer who have put in practice the result of such "research work" can usually testify most strongly. The only laboratory research work which is likely to prove of value is that in which *laboratory* and *working conditions* are kept very close together. If the engineer desires to investigate the relation between the setting time of a cement and its aeration, let him keep a 95-lb. bag of cement and draw samples from all parts of this bag (not simply from the top surface) and mix them.

Chemical Analyses.—At the present time one of the most serious drawbacks to chemical specifications for cement is the question of the accuracy of chemical analyses. Recently three of the most prominent chemists in the country were asked to report upon some thirty samples of cement. These men are all of them experts in cement analysis, yet the average alumina determinations of the three upon the 30 samples were as follows:

$$A = 6.88\%.$$
$$B = 7.56\%.$$
$$C = 8.56\%.$$

The samples according to *A* will pass Messrs. Reibling and Salinger's specifications, while according to *B* they contain ½% and according to *C* 1½% more alumina than is permitted. Let us suppose that *A*, *B*, and *C* were the chemists of three cement manufacturers. *A* would send his cement to the Philippine Islands and believe it to be all right, *B* and *C* might be deterred by Messrs. Reibling and Salinger's investigation from doing so. Let us also suppose *A*, *B* and *C* were chemists at Manila, and that specifications limiting alumina to 7% were adopted, then *A* would accept the cement and *B* and *C* would not, etc.

Specific Gravity and Under-Burning.—The authors of this bulletin also recommend that the specific gravity tests be taken as an indication of under-burning. This seems to be a step backward. The American Society for Testing Materials so far recognized the fact that this test was valueless for this purpose that they struck this clause ("or under-burning") out of their specifications. The authors seem to think that under-burning and excess of lime are the sole causes of the failure of cement to pass the soundness test, whereas, as a matter of fact, probably 90% of the cement which fails on this test fails because the raw materials have not been finely enough ground. For instance, they state that "unsoundness in conjunction with low specific gravity proves that under-burning alone is the cause of the warping and disintegrating." As a matter of fact, unsoundness and low specific gravity would be much more apt to indicate coarse ground raw materials. An underburned cement would season much more rapidly than one unsound because the raw materials had been coarsely ground, and hence the chances are that, while under-burned cement might show low specific gravity, it would be sound, whereas a cement which had been very well burned but which had been made from coarse raw materials might take up just as much water if given a longer time, have its specific gravity reduced to the same point, and be unsound.

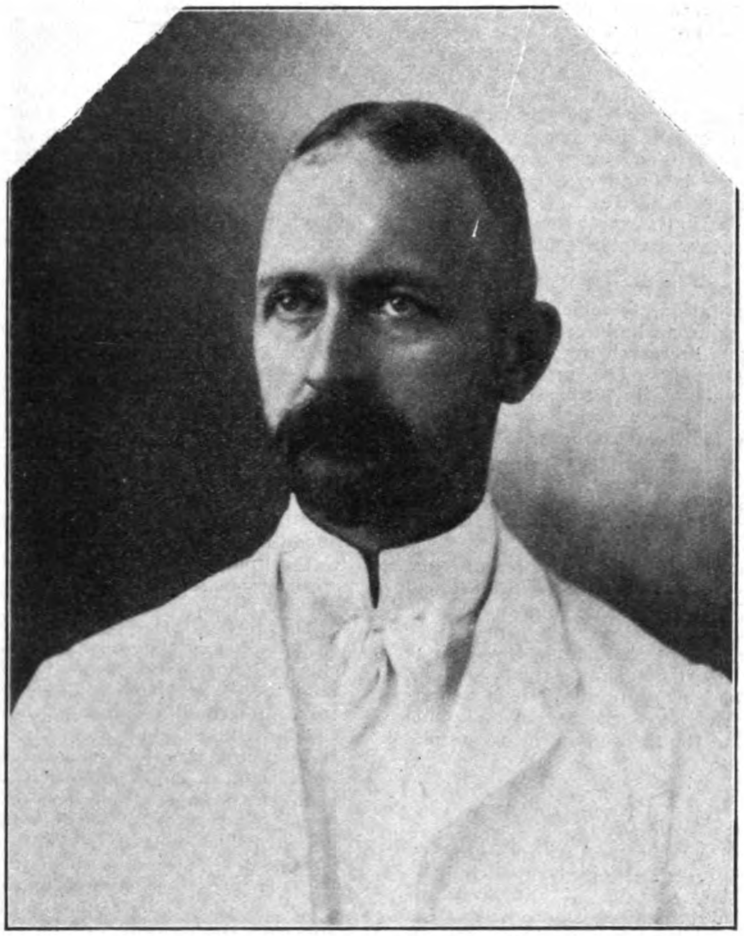
It is rather amusing to the cement manufacturer to hear this "under-burning" and "over burning" question discussed. The present writer is willing to confess that he has never seen an over-burned Portland cement from a rotary kiln, and that some samples which were fused to a viscous glass in the electric furnace still had excellent hydraulic properties. He is inclined to think that the rate of cooling, etc., would have a great deal more to do with the properties of cement than the temperature at which it was burned, provided this temperature had been carried sufficiently high to bring the lime into solution.

The question of specific gravity seems to be one which could be waived in the Philippine Islands very much better than almost anywhere else. The cement has withstood a long sea voyage, and it is probable that it had been lying in the stock house of the manufacturer for at least sufficient time to be tested, since no careful and reputable manufacturer would care to send cement this distance about which he was not perfectly sure. It would therefore seem that low specific gravity in cement which had been exported to the Philippines and tested there would be absolutely valueless as indicating anything. While it is probably perfectly true that the under-burned cement would absorb moisture faster than a well burned one, it is also equally true that a well burned cement does not have to be so very old to take up sufficient water to put itself below the requirements of the American specifications, and it is also true that in the time it takes a shipment or consignment of cement to go from this country to the Philippines, the cargo might very readily absorb enough moisture to lower its specific gravity below specifications.

The authors of the bulletin also err in their statement that all under-burned cements usually show a low specific gravity because of the carbonic acid (or carbon dioxide) which remains from imperfect burning of the raw material. Cement clinker which shows barely any indication of clinkering, and which is hardly anything more than a yellow ball which can be crushed between the fingers sometimes proves to contain as low as ½% of carbon dioxide. The carbon dioxide which is contained in ordinary cement is almost all of it absorbed during the grinding. In fact it is almost an impossibility to grind a sample under even laboratory conditions which does not take up some of these constituents from the air.

While it is perfectly true that a sample cannot take up moisture beyond a certain percentage without having some of its active compounds saturated thereby, it is also true that one cement might have a considerable percentage of its active compounds saturated and still be better than another cement. For instance, a cement containing 63% lime might have 4 or 5% of this lime saturated and still contain more active cementing matter than one with a very much higher hydraulic index which contained say 60% lime. So it is not, strictly speaking, proper to say that because a cement has taken up 3% moisture it should be rejected because its good properties have been impaired. While it is possibly true that some active compounds are destroyed it is also equally true that if the cement under this condition passes satisfactorily the average requirements the consumer is getting all that he has expected, or generally paid for. It is also true that in almost every case the compounds first hydrated or carbonated are those which cause unsoundness. It is also true that only that portion of the lime which is carbonated is destroyed, as hydrated lime is by no means an inert compound but has good effect upon hydraulic cements and may be made to replace cement in mortars, often to positive advantage and particularly to improve troweling properties.

To sum up, if the Philippine engineers want good Portland cement, or at least an open market to all good cements, they will let the manufacturer decide on the composition of the product (his chemist is usually very much better posted on the effect of composition and aeration on the setting properties of his brand than is an outsider), and confine his energies to securing a finely ground cement, of good strength, and perfectly sound. Owing to the long voyage and delays in transit from this country to the Philippines, low specific gravity found in cements after arrival there is more likely to be due to aeration than to any other cause. It is seldom due to under-burning, and when it is the latter will be shown by the cement being unsound or, if seasoned sound, by low tensile strength. Reputable manufacturers do not adulterate cement, and the irresponsible ones know how to get around the specific gravity requirements.



Hon. FRANK A. BRANAGAN,
RECENTLY APPOINTED MEMBER OF THE PHILIPPINE COMMISSION

Mr. Frank A. Branagan is another young man whose advancement to the important position of member of the Philippine Commission was the reward of merit alone. Strange as it may seem to those familiar with the importunities of political workers in the United States, here is a young man, 49 years of age, who arrived March 4th, without any political influence to mark him for special favor. He carved out his own career and was fortunately benefited only by the policy of the administration in regard to its attitude to the Philippine Service. Mr. Branagan was born in the town of Steubenville, Ohio, April 5th, 1858. He attended the Georgetown University, Washington, and during the two years previous to his graduation in 1888, he worked in the Treasury Department at Washington and thus paid his expenses. After graduating in law he accepted the appointment as chief of the bureau of appointments and disbursements in the Department of Justice, and in 1895 he was promoted to the position of chief of the bureau of accounts in the Department of State. In 1898, on account of his marked ability, he was selected to accompany the American peace commissioners to Paris as Fiscal Attaché. His services were so highly satisfactory that when Mr. Taft was looking for men to accompany him with his commission to the Philippines, he chose Mr. Branagan for his disbursing officer. This was in 1900. The following year, when the civil government assumed charge of the islands, Mr. Branagan was appointed Treasurer. He organized and administered the Bureau from that date until his recent elevation and during that time he has proved his worth to the government. He is a modest gentleman, unassuming, yet always alive to the interests of the Philippines. His promotion has been universally approved.

MR. WILLIAM H. CLARKE, INSULAR AUDITOR, PHILIPPINE ISLANDS

President Taft, while Governor of the Philippines, was a devout believer in the Civil Service System and supported the requirements of that bureau under the direction of Dr. Washburn in and out of season. The recent promotion of Deputy Auditor William H. Clarke to be Auditor is in line with the President's policy as expressed many times while in the Islands. And the reward that has come to Mr. Clarke has been well earned by years of constructive service in perfecting the organization that he now directs. It may now be said that the Bureau of Audits is one of the most thoroughly systematized departments of the insular government. It has taken years to bring it to its present efficiency, and to Acting Governor-General Forbes, who recommended the reorganization of the Bureau in 1904, and to Mr. Clarke, who has since that time devoted his entire time to this work, is due the credit, and at the present time under his direction the Insular Government may be said to have the benefit of the application of the most modern, expeditious, successful, commercial and corporate methods to the auditing of public accounts.

Mr. Clarke belongs to an old Scotch-Irish American family. His great-great grandfather served in the revolutionary army as captain of a company of Pennsylvania militia and gained distinction during the revolution. The Clarkes were a family of bankers.

William H. Clarke comes naturally by his talent for accounts. His grandfather was president of the Lawrence County National Bank, at Newcastle, Penn., and his father Mr. A. L. Clarke, the president of the First National Bank of Hastings, Nebraska. He was brought up in a banking atmosphere. Mr. Clarke was born in Alleghany, Penn., in 1862. He attended the Alleghany College and chose engineering as his profession. During his vacations he worked in the counting room of his father's bank. After leaving college in 1882, he accepted a position as assistant bookkeeper in the First National Bank of Omaha, Nebraska, passing through the different positions of bookkeeper, teller, etc., to discount clerk. In 1886 he married Miss Gertrude Tonzalin, daughter of a prominent official of the Rock Island Railway. About this time he entered the employ of the Omaha & Grant Smelting Company and later with the Mexico Central Railway. In 1900, Assistant Secretary of War Meiklejohn, who was looking for young men having knowledge of accounts and some familiarity with the Spanish language, offered Mr. Clarke a position in the Bureau of Insular Affairs at Washington, and from there he came to the Philippines to be chief clerk of the Bureau of Audits, in the "Days of Empire." Since that time he has been continually associated with the history of the bureau. In March 1907 he was promoted to the position of Deputy Auditor and from July 27th, 1907, to April 17th, 1909, he was in charge of the Bureau as Acting Auditor. It was on the latter date that his appointment was confirmed.

PROMINENT AMERICAN ENGINEER VISITS THE FAR EAST

Mr. C. Griffith Young, who has been connected for over 16 years with the well-known firm of Messrs. J. G White & Company of New York, arrived in the Philippine Islands last month and will complete a tour of the Far East looking up the engineering situation and at the same time carry out several large commissions with which he is entrusted. Mr. Young recently severed his connection with Messrs. J. G. White and Company and opened an office at 60 Wall Street, New York City. He is an engineer of world wide reputation and will be given a welcome by the engineering profession of the

Orient. Mr. Young has directed the construction of more electric lines possibly than any other engineer living, and there is no branch of engineering construction in which he has not made a remarkable success. The *Electrical World* has the following to say about this successful captain of industry:

"Mr. C. G. Young, who has been so intimately connected with the J. G. White interests for the past 16 years, is opening offices for himself, at 60 Wall Street, New York, N. Y., for engineering examinations, estimates, reports, etc. Having important work of this kind to do in the Far East, he is sailing early in February for Japan, and, after visiting other countries, will return in August and take up a regular practice. His address until departure will be 43 Exchange Place, New York, N. Y. From 1888 until 1892 he was general superintendent of the Mount Morris Electric Lighting Company in New York. In 1892 he began his connection with White-Crosby and J. G. White as construction superintendent, and in 1900 he went with J. G. White & Company, Ltd., of London, doing special expert work all over the world for it. Returning to this country, since 1902 he has been successively general superintendent of construction and construction manager for the American White corporations in a great many cities in this country, as well as in the Philippines, Australia, Holland, Argentine Republic, Ceylon, Cuba, Canada, Uruguay, Brazil, Porto Rico, China, Chili, New Zealand and Japan. Mr. Young is a member of the American Institute of Electrical Engineers, associate member American Society of Civil Engineers, member of the New York Railroad Club, the New York Electrical Society, the National Electric Light Association and the Engineers' Club."

While in Japan, Mr. Young was engaged by the well-known firm of Messrs. S. Ida & Co. (Tickashimay) to represent them in the United States as consulting and purchasing engineer. The Ida firm is purveyor for the government and owns extensive plants throughout the country.

MR. JOHN L. BARRETT,
TREASURER OF THE PHILIPPINE ISLANDS.

Mr. John L. Barrett, who was promoted, April 18, 1909, to succeed to the Treasurership of the Philippines, was born in Minneapolis, Min., in 1876, and is one of the youngest Americans in charge of a bureau of the Insular Government. In 1896 he joined the office staff of the International Harvesting Company in his native town, and when the Spanish War broke out in 1898, the attraction of a promising career with that influential organization did not deter him from offering his services to his country and he came to the islands with the 13th Minnesota Volunteer Infantry, making the sacrifice cheerfully and without promise of reward. After the fall of Manila, the military authorities required the services of a number of young men familiar with the counting room for the treasury department, and among those assigned to duty was Mr. Barrett. His orders was dated October 1st, 1908. From that day until the present he has been continually associated with the history of the Bureau under Military and Civil control. In 1903 Mr. Barrett was appointed Assistant Treasurer and for a period of over one and one-half years he served as Acting Treasurer during the absences of his chief. The result is that the new treasurer is fully equipped by experience and familiarity with the duties that now devolve upon him, that his advancement is most desirable in every respect.

The position is worth $6,000 a year, a very small compensation when the importance of the office is considered. It is estimated that over ₱500,000,000 passes through the Insular Treasury annually, and besides the responsibility for the Insular funds, the treasurer is the custodian of the huge United States account and many trust funds. He is also manager of the Agricultural Bank with a capital of ₱1,000,000 and a member of the investing board of the Post Office Savings Bank which has on deposit over ₱1,500,000. Besides the Bureau is in the banking business and every year handles over ₱30,000,000 in foreign exchange. Then there is the responsibility for the banks of the Philippines. The treasurer has absolute control over the inspection of all these institutions and he is also responsible for the proper investment of trust funds reaching up into the millions.

Mr. Barrett is in his 33rd year. His advancement to his present responsible post has been earned by steady application, and it must be recognized as evidence that the Philippine service has its attractions for the young American. This is especially true since this promotion is but the natural result of the strict application of the civil service policy of the Taft administration. And Mr. Barrett's experience would indicate that in making his early sacrifice on the altar of patriotism, without hope of preferment, he came into his own where he least expected it.

THE OUTLINE OF THE FURUKAWA MINING CO.

The Furukawa Mining Co. that supplies the market, both at home and abroad, with wire, copper, silver, coke and coal was originally established by the late Mr. Furukawa Ichibei in the 8th year of Meiji, and at the death of Mr. Furukawa in the 36th year of Meiji, the whole concern was managed by Mr. Furukawa Junkichi, but in April of the 38th year, with a view to consolidate the business, it was turned into a business corporation with Furukawa Junkichi, Furukawa Toranosuke, Kimura Choshichi and Hara Kei as members, while Mr. Hara acted as the representative of the five. At the death of Mr. Furukawa Junkichi in the 40th year, Mr. Furukawa Toranosuke was made president when Mr. Hara was appointed Minister of Home Affairs, Baron Nakajima joined the staff, and ever since the business of the company is making steady progress, and at present is one of the most powerful companies:—

1. Locality of the Company.—There are several branches throughout Japan.

1. The Headquarters.—
No. 1, Yaesucho, Kojimachi, Tokyo.
2. Moji branch.—Sanbashi-dori, Moji.
3. Wakamatsu agency.—
Wakamatsu-cho Fukuoka-ken.
4. Osaka branch.—
No. 5, Horidori, Nishi-ku, Osaka.
5. Akiha-hara goods agency.—
Akihagahara, Kanda, Tokyo.
6. Ashio mining office.—Ashio, Tochigi.
7. In-nai mining office.—In-nai, Akita.
8. Ani mining.—Aniai machi, Akita.
Furo-kura mining office.—Ofu-mura, Akita.
Nagamatsu mining office.—Shirayama-mura Yamagata.
Mizusowa mining office.—Inazaki-mura, Iwate
Kusakura mining office.—Kase-mura, Nügate-ken.
Kune mining office.—Sakuma, Shizuoka-ken.
Saibe mining office.—Katsunomura, Fukuoka-ken.
Shino-nome refinery.—Shino-nome, Akita-ken
Honjo Yodo refinery.—Yanagihara, Honjo.
Fukagawa works.—Suna-mura, Tokyo.

The business connections with these different places are something quite striking.

2. Line of business.—The wholesale transactions form the principal items of business, but retailing is also carried on. The particulars are given in the following table:

(A) Copper.—The copper of this company enjoys the reputation of being the 1st class of the kind in the east. There are six different kinds of copper.

1. Bessemer copper.
2. Round-shaped copper.
3. T-shaped copper.
4. Small T-shaped copper.
5. Electric copper rod.

The output of copper by the company reaches over 20,000,000 *kin* per year, the greater part of which is exported abroad, and the delivery has always been satisfactorily made.

1. Bessemer copper.—3½ inches on the above part, 4.6 inches at the bottom, and 2.3 inches thick, and weight is some 50 *kin*. The output in the Ashio copper mine reaches over 12,000,000 *kin* per annum. It is chiefly used for casting works, T-shaped copper made amounts to some 10,000,000 *kin* a year. It is intended for wire. The output or T-shaped copper is about 1,700,000 *kin* a year while the exact figures concerning the output of T-shaped copper are not obtainable because it is made in order. Electric plates rod, and wire are made in order. Such brands as B.W.G., S.W.G., B.S. are also obtainable. Besides the company can make trolly and other varieties of wires some of which actually extends over 1 mile.

Silver is obtained from the In-nai silver mine, and the output amounts to some 4,000 *kwamme* a year. Its fineness ranges from 92% to 98 per cent. Coke is produced by the company's mine to the extent of over 20,000 *tons*. The following is the result of the analysis of the company's product:—

	Coke	*Ashes*	*Sulphur*
No. 1..............	83	12	1
No. 2..............	80	15	uncertain
3rd................	75	uncertain	uncertain
Special make.......	88	10	1

Coal is obtained in the Chiku-ho mine, and the output reaches some 500,000 *tons*. As the coal contains sulphuric elements, its burning power is strong, and it is favorably received as a material for gas manufacturing; and for the use by ships, the company's coal is the best of all.

* Japan's Financial Economic Monthly.

FAR EASTERN COMPANY REPORTS

Tanjong Pagar Dock Board.—The report for the Board for the half-year ended December 31st is reviewed by the *Singapore Free Press* as follows:

In the course of the report, which is signed by Mr. S. A. Lane, we see that the credit balance of revenue account for the half-year under review amounts to $746,324.31 which, together with the sum of $61,092.09 brought forward from the previous half-year's accounts, gives a balance at credit of $807,416.40.

Allocation of Balance.—Of the total disposable balance of $807,416.40, interest paid or due to Government in respect of Loan Funds raised in pursuance of Ordinance No. IV of 1907 absorbs the sum of $600,000.67. The balance remaining of $207,415.73 has been appropriated as follows:—

Transferred to Reserve Fund, under Section 31 (2)	$100,000.00
Transferred to Renewals Equalization Fund	20,000.00
Transferred to Fire Insurance Reserve Fund	25,000.00
Carried forward to next half year	62,415.73
	$207,415.73

The comparison of revenue with previous half-years since the formation of the Board, shows that exclusive of work on the Board's own account done in the docks and workshops, the following are the figures for the two halves of the year:

	Wharf.	*Docks.*	*Total.*
1905	$1,364,971	$ 969,760	$2,334,731
	1,491,341	1,016,067	2,507,408
1906	1,453,823	854,626	2,308,449
	1,547,028	1,000,594	2,547,622
1907	1,479,684	1,057,645	2,537,329
	1,516,291	986,281	2,502,572
1908	1,258,281	961,646	2,219,937

The balances for the same periods were as follows:—

1905, $663,319.97; 1906, $702,713.45, $817,-642.85; 1907, $803,944.40, $857,158.65; 1908, $804,772.01, $746,324.31.

Decrease of Trade.—As will be seen, the Board have to record a decrease in the net revenue of $58,697.70, as compared with the previous half year, and of $28,852, as compared with the average half-yearly net revenue since the inception of the Board.

The decrease in the Wharf gross revenue is $258,000 and in the net revenue $144,000, which is due to world wide trade depression reflected generally in the Colony, and is in sympathy with the decreased tonnages of vessels berthed and cargo and coal handled at the Board's Wharves. Coal handled gives a decreased tonnage of 179,269 and cargo one of 52,231.

Gross Wharf revenue per ton of cargo and coal inwards and outwards is, however, up to the average. Gross Wharf revenue per ton of total tonnage of vessels berthed shews a decrease in that vessels have not discharged cargo here up to the average quantity, 1,137 vessels having involved cargo and coal inwards and outwards to the extent of 880 tons per vessel against 1,013 tons per vessel in the half year ending 30th June, 1908. Dock-yard gross revenue shows a decrease of $24,635; the net revenue, however, gives an increase of $78, 48, which is in the main due to the fact that at 30th June last a much heavier amount of work was in progress than usual, the profit on which fell to this half-year. The increased expense of $35,693 in repairs and renewals is accounted for to a great extent by the condemning and consequent replacement of six lighters. The balance on surplus revenue account, which at 30th June last stood at $256,-718.08, now amounts to $163,019.49, shewing a net decrease of $93,698.59, having been drawn upon to that net extent to provide funds for the expenditure made during the half-year on new works not payable from Loan Funds.

The expenditure during the half-year on new works not chargeable to Loan Account amounting to $197,720.45, has been debited to this Fund. The Ordinance to provide for the fixing of the amount to be assumed by the Board as a liability to Government in respect of the initial capital cost of the undertaking has not yet been introduced into Legislative Council. This matter is still under consideration by Government; meantime interest is being paid at the rate of 4 per cent on the suggested amount of $29,003,149.45 in respect of this item, and also at the same rate on payments made in pursuance of Ordinance No. IV of 1907, from Loan Funds, both in accordance with a letter from Government dated 15th Nov., 1907.

Statistics.

No. of vessels at Wharves and Tonnage.

1905	1,138	2,208,774
	1,244	2,327,378
1906	1,226	2,373,626
	1,286	2,331,289
1907	1,270	2,415,921
	1,227	2,447,845
1908	1,137	2,142,629

Tonnage of Cargo dealt with.

	Inward.	*Outward.*
1905	611,382	501,324
	674,755	544,323
1906	606,627	530,402
	663,947	565,023
1907	632,676	520,321
	673,866	558,865
1908	496,817	504,414

Dry Docks.—During the half-year 130 vessels (exclusive of the Board's own craft) were docked for repairs and painting, giving a total tonnage based on the tonnage in Dock daily of 776,165 tons.

The actual gross tonnage of vessels in dock were:—

	Tons
Half-year, June, 1908	181,180
Half-year, December, 1908	185,896

The four Dry Docks were occupied for a total of 531 days, as compared with 479 days in the previous half year.

New Works.—The extensions of the railway to Godown No. 3 and from Victoria Dock to Godown No. 17 have been completed. Further work of considerable extent in diversions of the system has been rendered necessary to meet the requirements of the Reconstruction Works, and to maintain adequate accommodation for the Board's traffic during their progress.

The centralization of workshops at Keppel Harbour proceeded satisfactorily.

A contract was placed with Messrs. Lysaght and Company of Bristol for the supply of steel-work for the erection of shipbuilding sheds covering an area of 200 feet by 120 feet, delivery of which was made in December. The foundations for these had meantime been in progress and the approaches to the slipways, involving the removal of the old wharf in front, satisfactorily completed.

The Wet Dock.—In the new wet dock and reconstruction of Main Wharf the Board have followed the progress of the new works with much interest. The cofferdam was satisfactorily closed and the tidal area pumped out early in September, and the excavations over the site of the dock and in the trenches for the side-walls forthwith put in hand, whilst tipping the embankment for the diversion of Keppel Road and the main eastern and western drains, with the subsidiary works thereto, were practically completed. The reconstruction of the Main Wharf—Section "A" to "B" was put in hand, and dredging operations, which involve subaqueous drilling and blasting the rock foundations, pushed forward. The Blockyard has been in full operation, and concrete blocks to the extent of 10,700 cubic yards were cast at 31st December. The erection of stagings, temporary workshops buildings and generally the laying out of the works has been commensurate with the usual practice of contracts of such extent, and the provision of plant and appliances by the contractors, leaves nothing to be desired, and it is to be anticipated that the scheme of procedure as proposed by them will show at an early date a more proportionate result in permanent work executed to the extent and duration of the contract than has hitherto been apparent.

New Graving Dock at Keppel Harbor.—A contract dated January 1st, 1909, for the construction of a Graving Dock at Keppel Harbor, was entered into with Messrs. Topham, Jones and Railton, contractors of Westminster, London, in the sum of £342,793, and for completion of the work by November, 1912. The dimensions of this dock are to be 852 feet in length by 128 feet between copings, the entrance being 100 feet wide and the depth on sill 25 feet at L. W. O. S. T., thus affording 34 feet of water at H. W. O. S. T. Provision is made by an intermediate Caisson for dividing the Dock into two compartments of 486 feet and 325 feet respectively.

Coaling Depot at Pulo Brani.—Protracted negotiations for the acquisition of the Admiralty Coal Depot at Pulo Brani, to meet the congestion of the coal storage accommodation on the Board's premises, have at length been satisfactorily determined, a lease for 10 years having been granted by the Admiralty to the Board, upon terms which include the erection of a new unloading jetty and the repair and maintenance of the existing coal sheds and premises at the Depot.

Prye River Dock, Penang.—Progress on the new wharf construction has proceeded satisfactorily, 104 piles having been screwed into position and braced together. Rather over one-half of the decking and superstructure of the wharf was completed and the railway lines proceeded with. A further 12,000 cubic yards of filling were deposited in the reclamation works. The system of sidings to connect with the Federated Malay States main line at Prye was put in hand, and good progress made with the embankments and plate laying. A "Gridiron" for repairing tonkangs was put in hand, and the lagoon basin deepened and the quay wall adjacent raised to the level of the reclamations. The half-year's profit of $19,578 may be again considered satisfactorily, and compares favorably with the previous half-year's working.

Government Wharves, Penang.—The Board are pleased to report that the progress of this undertaking has been entirely satisfactory, and would appear to have met with the approval of the local community and shipping interests of Penang.

The development of business may be observed from the table of tonnage handled during the first six months of the undertaking which shows a tonnage increase from 11,018 in July to 35,853 in December.

To meet the increasing traffic, Government has liberally provided funds for plant and appliances, and the general equipment of the quays and sheds, and have in view further developments for the improvement of the present facilities and accommodation. Some $235,000 have been voted by Government for the initial equipment and developments during the six months under review, this apart from the capital expenditure incurred in the building of the new sheds and provision of electric cranes, etc.

The profit for the first half-year's working in the sum of $30,387.26 may be considered satisfactory, this as it does allowing for various expenses incidental to the initiation of the undertaking, which have been charged to revenue and which will not be recurrent.

Chinese Engineering & Mining Co., Limited.—This company has declared an interim dividend of one shilling and six pence a share on account of year ended February 28th, 1909.

Kyushu Railway.—This company has declared a dividend of 9% per annum.

The Canton-Hankow Railway.—The accounts for the last year show a credit balance of $128,282,316 out of which the sum of $128,000 was transferred to General Account and the balance to working account.

Bangkok Dock Co., Ltd.—The net profits for the year were Ticals 56,172 out of which a dividend of 5% was directed paid and the balance of Ticals 8,872 was carried forward.

Seremban Estate Rubber Co., Ltd.—This company has paid a final dividend of 26% making in all 38% for the year.

GOPENG TIN MINING CO., LTD.—This company recently declared a dividend of 1s. 6d. a share.

THE NEW GOPENG MINING CO., LTD.—A dividend of 6d. a share has been paid.

THE TEKKA LTD.—A dividend of 6d.

ROYAL JOHORE TIN MINING CO.—This company declared a dividend of 3% and carried forward $579.23.

THE DAMANSARA RUBBER CO., LTD.—A final dividend making 12% for the year has been paid by this company.

SINGAPORE SLIPWAY CO.—The balance to the credit of profit and loss for the year was $37,420, out of which $6,100 was written off for depreciation, $15,000 to general reserve, a dividend of $6 a share paid and the balance carried forward.

SIPIAU TIN CO.—A dividend of 3% was declared for the half year ended December 31st, 1908.

MEIJI FIRE INSURANCE COMPANY.—This company declared a dividend at the rate of 20% per annum.

JAPAN FLOUR MILL CO.—This Company has declared a dividend of 6% per annum.

KLANANG PRODUCE COMPANY, LTD.—A final dividend has been declared of 10% making in all 15% for the year.

ANGLO-FRENCH LAND INVESTMENT CO., LTD.—This company authorized the payment of a dividend of Tls. 6 a share for the year.

MESSRS. HALL & HOLTZ, LTD.—A dividend of 10% was declared and a balance of $9,000 carried forward.

THE SIAM COMMERCIAL BANK, LTD.—The credit balance for the half year ended March 31st was Ticals 223,609.30, out of which Ticals 75,000 were added to the extraordinary reserve and Ticals 21,105 to the ordinary reserve besides paying a dividend of 3% for the half year.

HONGKONG ELECTRIC CO., LTD.—This company paid a dividend of 10% and a bonus of 2% and after writing off depreciation, paying bonuses, etc., carried forward $11,043 to next account.

SHANGHAI HORSE BAZAR CO., LTD.—This company paid a dividend of 10% for the year 1908.

THE CHINA PRINTING CO., LTD.—This company directed the payment of a dividend of 7% for the year 1908.

TOKYO MARINE INSURANCE CO.—A dividend of 4% for the half year term was paid by this company.

HODEN KEROSENE OIL COMPANY.—At the general meeting held last month this company declared a dividend at the rate of 30% per annum for the last half year.

SIMO RUBBER ESTATES LTD.—This company has paid a dividend of 8%.

NATIONAL BANK OF CHINA, LTD.—The following is the directors' report on this institution for 1908:

"The gross profits, including $10,223.09 brought forward from last year, are $265,389.36, which, after deducting all charges, leave a net profit of $180,552.57; this the Directors propose to deal with as follows:—Place to reserve fund $150,000 and carry forward balance of $30,552.57 to next account.

J. LLEWELLYN & CO., LTD.—This company paid a dividend of $7.20 for the year besides a bonus of 5% paid the manager and two assistants on their salaries.

CEYLON PLANTERS' RUBBER SYNDICATE, LTD.—A dividend of 28% was declared at the ninth annual meeting of the shareholders of this company besides placing Rs. 40,000 in extension account and carrying forward Rs. 2,728.

RILEY, HARGREAVES & CO.—The 10th annual ordinary general meeting of the shareholders of the above Company was held in the Registered Office of the Company, No. 5 Read Street, at 12 noon, Wednesday, April 28th.—Present.—Messrs. C. E. F. Sanderson, (Chairman); M. E. Plumpton, C. W. Darbishire, R. M. Goldie and T. C. B. Miller, (Directors).

There were also present Rev. N. J. Couvreur and Messrs. E. F. H. Edlin, J. H. Drysdale, D. Miller, S. Katz, A. Fleming, J. L. Montgomerie, J. A. N. Pickering, H. P. Bagley, H. Winkelman, Thomson, J. Allan, Crofts, Jack, and other shareholders.

After a few explanatory remarks by the Chairman, several questions were put by the shareholders and answered.

The report and accounts for the year ending 31st December, 1908, were then adopted and a dividend of $7 per share on preference shares and $5 per share on ordinary shares declared.

Messrs. M. E. Plumpton and T. C. B. Miller were re-elected Directors of the Company.

Messrs. Gunn and Company and W. Lowther Kemp were re-elected Auditors.

A vote of thanks to the Chairman brought the meeting to a close.

THE NEW ZEALAND INSURANCE COMPANY, LTD.—A dividend of 10% was declared by this company for the year 1908.

THE COLONIAL BANK OF HOKKAIDO.—At the semi-annual meeting of this institution a dividend of 9% per annum was declared.

THE FIRST BANK.—The following accounts and recommendations of the directors for the half year term were approved:—

	Yen.
Net profit for the term	1,040,849
Brought from last term	537,666
Total	1,588,515
Bonus and pension fund	52,440
Reserve	400,000
Korean branch reserve	100,000
Dividend to shareholders (10% per annum)	500,000
Carried to next accounts	536,075

DAI NIPPON WHALING CO.—The following accounts and recommendations for the term were approved:

	Yen.
Net profit	85,216
Brought from previous term	5,419
Total	90,635
Legal reserve	4,260
Special reserve	4,260
Sinking fund	4,260
Sinking fund for organizing expense	740
Dividend (10 per cent. per annum)	75,000
Carried to next account	2,114

THE TOKYO GAS COMPANY.—The following accounts and distribution of profits for the term were approved:

	Yen.
Profit for the term	794,545
Brought from last term	71,343
Total	865,888
To reserve	40,000
Special reserve	43,938
Bonus	15,891
Pension fund	7,95
Dividend (13% per annum)	685,664
Carried forward	72,449

THE SHELL TRANSPORT AND TRADING CO.—An interim dividend of 1s. a share has been declared making with interim of last July 10% for the year 1908.

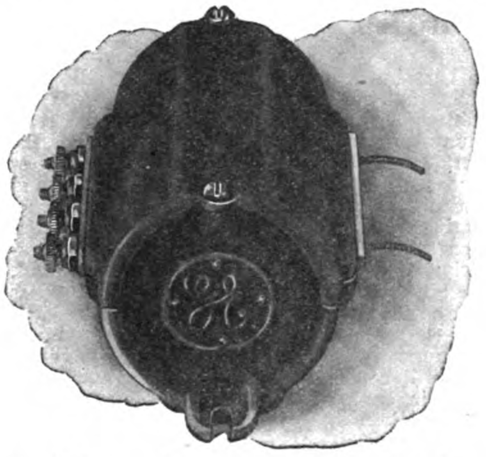
WEST POINT BUILDING CO., LIMITED.—This company declared a final dividend of $2 making $4 for the year 1908.

HONGKONG LAND INVESTMENT AGENCY, LTD.—This company declared a final dividend of $3.50 making $7 for the year 1908.

THE FUJI GAS SPINNING CO.—This company paid a dividend of 14% per annum for the last half year term.

A NEW BELL RINGING TRANSFORMER

The electric bell and its heretofore indispensable ally, the primary battery, date back to the early days of the electrical industry. The same can be said of the alternating current transformer. But the combination of the transformer and the electric bell is of modern origin and the direct result of a desire to get



rid of the troublesome and trying situations arising from the use of primary or storage batteries.

To meet this demand the General Electric Company has recently placed on the market a transformer for ringing electric bells. This transformer has a low voltage secondary winding with taps giving 6-12 and 18 volts when the primary is connected to the ordinary 110 volt lighting circuit The transformer will operate successfully on circuits ranging from 100 to 130 volts at the usual lighting frequencies.

Materials of the highest quality are used in the construction and the design has received the same careful consideration as is given to larger transformers. Compactness, freedom from mechanical defects and absolute reliability are the resulting features.

The entire transformer is so small that it may be held in the hand. The general design has been proportioned for very low losses, the core loss being practically negligible. The transformer is designed in such a manner that a continuous short circuit on the secondary will do no damage either to the transformer or adjacent circuits.

The core and coils are placed in a small metal box with lugs or feet attached for convenience in fastening to the wall or ceiling. A screwdriver is the only tool needed for installing the transformer after which it requires no attention whatever. This is in strong contrast to the ordinary primary battery.

This transformer may also be used to advantage for operating buzzers, spark coils, burglar alarms, miniature lamps, door locks, gas lighting and annunciator systems.

CORPORATE METHODS OF PUBLIC ACCOUNTING IN THE PHILIPPINES

The Governor-General has submitted to the Legislature the report of Messrs. Haskins & Sells, Expert Accountants of New York City, upon the accounting system of the various Governments of the Philippine Islands. It appears from their report that the system of accounting in the following Bureaus were examined by them: Audits, Treasury, Internal Revenue, Public Works, Navigation, Posts, Education, Prisons, Printing, Supply, and the Insular Ice Plant, as well as the Province of Laguna and the Municipalities of San Mateo and Pasig, having conferred with a number of Provincial Treasurers and District Auditors.

Speaking of the Insular Government they state that the transactions originate in and are stated by an administrative Bureau or Office and are verified by the Insular Auditor independently which is a double check upon all transactions except the final assembling of all the Bureau accounts by the Auditor. That the system introduced and now in effect is based upon correct accounting principles which take into account the revenues collected whether they have been deposited in the Treasury or not, and obligations incurred or accrued for expenditures whether paid or not, and efficiently administered should prove a safeguard to the Government. That such system is in accordance with modern methods to be found in most well organized businesses and is in advance of the method adopted by Governments generally which for the most part adhere to the plan of accounting for the actual cash as received and as paid out.

The report makes recommendations looking to the simplification of the Internal Revenue and Provincial accounting which has been the subject of some complaint by provincial treasurers upon whom has fallen the brunt of the work, recommending that the ten reports now rendered monthly of Internal Revenue and Municipal collections be consolidated into one, stating that by the adoption of their recommendations along this line the work of the municipal treasurer will be simplified and reduced, the bookkeeping in provincial treasurers' offices will be simplified and reduced at least one-half and the work of district auditors in provincial and municipal offices, and their reports therefore will be facilitated and simplified without removing any of the present safeguards from their audit.

The report contains a comparison of the present system installed by Acting Auditor Clarke, in charge of the Bureau of Audits since July, 1907, and the former system installed under the direction of Auditor Lawshe, now Third Assistant Postmaster General at Washington, showing important changes in the following respects:

"The provisions made for taking into the general accounts, in the period for which it accrues, the revenue as reported by collecting officers, whether remitted to the Treasurer or not, the obligations incurred for expenditures, and the amount of interest accrued, whether paid or not, on outstanding obligations.

"The provisions made for the classification of accounts of the Insular Government as between permanent improvements to be shown as assets, operations and appropriations, and the industrial operations, and the preparation of balance sheets and statements of accounts in accordance therewith.

"The introduction of check voucher warrant system for payments.

"The introduction of the system of auditing before payment, the accounts for disbursements of the Insular Government, except some of the pay rolls, and the auditing of the accounts of the collections of customs for the Port of Manila, before they are reported.

"The establishment or improvement of cost accounts for bureaus or divisions having industrial operations, such as Printing, Prisons, and Navigation.

"The provisions for uniform recording and accounting for stocks of supplies and property and equipment by bureaus and offices and for concluding such accounts in the Insular balance sheet.

"The introduction of journal abstracts with columns provided for accounts of frequent recurrence, by means of which voluminous journalizing and posting is eliminated.

"The settlement of inter-bureau transactions on approved vouchers, passed through the Auditor's journal charging and crediting the bureaus and offices, avoiding actual cash payments and receipts between them."

The report concludes with the statement that the signers "had not attempted to call attention to the many favorable conditions, aside from those of the system of accounting, found in the bureaus and offices. The character of the personnel, however, is conspicuous and has an important relation to the accounts as well as the administration of the Government; directors of bureaus, chiefs of divisions and clerks, are all deeply interested in their work. They show fitness for their respective undertakings and express interest in and welcome changes that are calculated to simplify the work—reducing the red tape without removing any of the safeguards and increasing the efficiency. They are energetic, enterprising, and enthusiastically devoted to their respective undertakings, The spirit and animation shown is unlike that found in Government, State, and Municipal offices usually, and compares favorably with that in corporate and private affairs."

The quotation above is of special significance in view of the fact that Mr. Sells is not impressed with usual management of government bureaus in the United States. In a speech* made at a banquet of the Certified Public Accountants of the State of New Jersey at Newark in January, 1908, in response to the toast "The American Association of Public Accountants," Mr. Sells said:

"I know as a matter of fact that the management of our great properties is generally intelligent and economical, and that the management of our Government bureaus is generally loose, irregular, and frequently dishonest; when I read the articles with which so many of our newspapers and magazines are filled nowadays, reflecting on men whose genius is developing the country's resources, and when I hear the proposals of politicians, from the most eminent to the least, for the passage of laws to hamper and restrict the energies of these men on the theory that their integrity is open to suspicion, my mind inevitably brings up the contrast that I always observe between a corporation's way of doing things and a government's as disclosed by their respective records and books of account.

"For the purpose of this comparison, incompetency and dishonesty need not be separated. Putting them together it is my deliberate estimate, that, judged by the highest standards prevailing in the best conducted corporations, there is less than 10 per cent of both among men in the management of corporations generally, and at least 90 per cent of both among public office holders, and I base this estimate upon my experience as a public accountant."

Messrs. Haskins & Sells were called by Congress in 1893 under the Dockery Act to revise and simplify the accounts of the Government at Washington, and later were employed to straighten out and adjust the accounts of the City of Chicago and the State of Kansas. They have offices at New York, Chicago, Cleveland, Pittsburg, and London, England, and while Mr. Sells returned from Manila to New York, his able assistant, Mr. C. E. Morris, C. P. A., sailed for Australia and New Zealand on the *Taiyuan* a few days ago with so many engagements ahead of him that he cannot expect to reach his home before the middle of the summer. He was accompanied by Mr. Thomas Russell Lill, one of the most efficient members of Auditor Clarke's staff, who expects to put in his entire leave of absence upon account work.

It is to be noted that the present system has been of direct benefit to the public. Importers are not now called upon for additional duties upon re-liquidation of their customs duties months after the goods have been received and sold—audit is now had before the duties are paid and so far as the Government is concerned the liquidation is final. Payments by the Government are made more promptly than ever before and the annual report of the Auditor for 1908 was issued October 4, three months earlier than any report issued under the former régime.

The Government Accountant, June, 1908.

MANILA RAILWAY EXTENSIONS

Authorization for the construction of a line connecting the pueblo of Lucena with Albay, a distance of 160 miles, has been given the Manila Railway Company, and with its completion Manila will be connected by rail with the most southern section of Luzon. This extension will traverse the Camarines and Albay province passing through the gold mining region in the Camarines and the rich hemp belt of Albay. The lines through Batangas and Tayabas provinces to Manila will thus be taxed to carry the enormous traffic sure to be fed to them from these sections.

In addition to the Lucena-Albay extension, the company will connect the railway extension from Dagupan to Camp One on the Baguio Road with the town of Baguio, the summer capital. This latter will make connection between Manila and the Benguet region. It has not been decided whether it will be a steam or electric line. An investigation is being made of the capacity of the Bued River to supplying power for a generating plant, and until the report is submitted, this feature will remain an open question. The railway will be built, however, at an early date.

MANILA ELECTRIC RAILWAY EXTENSION

The Manila Electric Railway Company has concluded plans for an extension of their suburban lines to the Laguna de Bay at Bagombayan and to operate from that point a number of swift lake steamers to connect with the famous Pagsanjan Falls and Gorge. The plans also contemplate the erection of a first class hotel at Pagsanjan for the accommodation of visitors.

The line proposed will extend from Fort McKinley through Pateros, Taguig, and along the lake front to Bagombayan, a distance of six miles. This will put the lake country very closely in touch with Manila and these vessels on the lake will be welcomed as an improvement on the present very indifferent service given by the native lines.

The vessels may be put on before the line is built to Bagombayan. Pasig, which is now in touch with the city by the suburban line, may be made the port at which connection will be made with the steamers. It is expected, however, that when the plans are completed Pagsanjan will be put within four hours of Manila, and the Gorge become a favorite week-end resort for the residents of the capital.

The extension to Pagsanjan has been made the subject of a favorable report by Mr. C. G. Young of New York who visited the islands for the express purpose of looking into several engineering projects for the firm of Messrs. J. G. White & Co.

PHILIPPINE GOLD OUTPUT, APRIL

Paracale Gold Dredging Co., 652 ounces. Benguet Consolidated, 219 bullion and 118 pounds cyanide.

F. M. S. TIN OUTPUT, MARCH

Belat	592
Bruseh	310
Gopeng	630
Kanaboi	271
Kinta	410
Kledang	380
Kuantan	69
Lahat	701
New Gopeng	125
Pahang Consolidated	1700
Pusing Lama	680
Rambutan	290
Redhills	625
Royal Johore	87
Sempam	100
Serendah	300
Sipiau	106
Tekka	400
Tronoh	2103

CONTRACTING NEWS

*CHIEF QUARTERMASTER, U. S. A.—Six steel lorchas, bids received to June 15th, 1909.

PHILIPPINE GOVERNMENT COAL CONTRACT.—40,000 tons—Bids opened May 17th. Messrs. W. F. Stevenson & Co. representing Andrew Weir & Co., ₱10.55 Manila, outside ports ₱11.35 except Cebu, ₱11.05; Macondray & Co. ₱10.64 Manila, balance ₱11.64 except Cebu and Iloilo ₱11.39; Macleod & Co., ₱11.35 Manila, balance ₱12.25 except Iloilo and Cebu, ₱12.80. Mitsui Bussan Kaisha, Manila ₱10.65, balance average ₱12.80; Madrigal & Co., Manila, ₱11.08, average ₱12.20; Warner Barnes & Co., Manila, ₱11.43, outside, average ₱13.63 except Cebu and Iloilo ₱12.08; Smith Bell & Co., Manila, ₱10.98, outside, average ₱12.50 except Puerto Princesa, etc., ₱28.50. Contract awarded Messsr. Stevenson & Co. Arrangement this year makes saving of ₱40,000 on last year's contract.

PHILIPPINE GOVERNMENT CEMENT CONTRACT.—40,000 barrels—Opened May 8th. Contract to be awarded on basis of quality compared to price named in bid after seven days test—not yet decided. W. H. Anderson & Co., Green Island, Emerald, ₱4.19; Finlay & Co., Alsen's, ₱4.49; H. W. Peabody & Co., Atlas, ₱4.73; Castle Bros.-Wolf, Asano, ₱4.54; Smith, Bell & Co., Dragon, ₱4.16; Macondray & Co. Pyramid, ₱4.37; Behn Meyer & Co., Menmoor, ₱4.19; Mitsui Bussan Kaisha, Oneda Portland, ₱5.30. Saving of ₱24,000 indicated compared with 1908.

CHIEF QUARTERMASTER U. S. ARMY, MINERAL OIL.—360,000 gallons—Opened May 5th.

PHILIPPINE PUBLIC WORKS.—Pandacan Quarantine Station, six cattle sheds—J. H. Williams, ₱4,725 for each shed, a total of ₱28,350; E. E. Calvin, ₱49,400; R. Soriano, ₱41,544; O. F. Campbell, ₱34,974; S. A. Reich, ₱5,450 each, a total of ₱32,700; Delmar Smith, ₱35,630; S. C. Choy, ₱55,250; Atlantic, Gulf and Pacific Company, ₱24,849; R. Machuca Gotauco, ₱6,700 for each shed, a total of ₱40,200.

CHIEF QUARTERMASTER, U. S. A., MANILA.—Galvanized iron sheeting, 40,000 pounds, ridge-roll 30,000 lineal feet, awarded May 5th. Awarded Messrs. W. F. Stevenson & Co., ₱.03 per pound and ₱.0323 a foot respectively.

CHIEF QUARTERMASTER, U. S. A., MANILA.—Rope, 100,000 pounds—Awarded April 30th, Messrs. W. H. Anderson, product, Hongkong Rope Manufacturing Co., price ₱.168.

CHIEF QUARTERMASTER, U. S. A., MANILA.—Bids will be received for the construction of one light twin screw river steamer to June 16, 1909.

IMPERIAL TIENTSIN-PUKOW RAILWAY SOUTHERN SECTION.—Nanking.—Tenders invited for Twenty Thousand (20,000) Casks of Portland Cement to be delivered on the Railway Wharf, Pukow, NOT later than 31st Day of AUGUST, 1909.

*CITY OF MANILA.—Bids will be received to July 1st for the furnishing of approximately 160 gate valves, 20 air valves, and 325 fire hydrants by the Secretary of the Municipal Board, Manila.

*CITY OF MANILA.—Bids will be received to June 1st for the furnishing of 7,000 tons of cast iron pipe hub and spigot pattern; about 56 tons of 20-inch flexible joint and flanged cast iron pipe; two tons flanged cast iron pipe and about 200 tons of cast iron specials, by the Secretary of the Municipal Board, Manila, or address Chief of Bureau Insular Affairs, Washington.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Tenders invited, to be opened June 21st, 1909, by the Managing Director at Nanking, China, for the furnishing free of all charge at the wharf at Pukow, not later than December 31st, 1909, Steel Plate Girders as follows:

26 Spans of Deck Girders, 12 feet clear span; 12 Spans of Deck Girders, 20 feet clear span; 60 Spans of Deck Girders, 30 feet clear span; 12 Spans of Deck Girders, 50 feet clear span; 2 Spans of Through Girders, 50 feet clear span; 3 Spans of Deck Girders, 75 feet clear span; 3 Spans of Through Girders, 75 feet clear span.

Quotations in sterling and bids must be presented on or before June 20, 1909.

PROPOSALS FOR CONSTRUCTION OF SIX STEAM LAUNCHES.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 20, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, will be received here until 10:00 a. m., July 15th, 1909, and then opened, for the construction and delivery of six Steam Launches. Blank forms, plans and specifications furnished upon application to this office and to the representative of the Consular Service of the United States at Hongkong, Shanghai and Singapore. Envelopes containing proposals should be endorsed "Proposals for construction of six Steam Launches, to be opened at 10:00 a. m., July 15th, 1909" and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PROPOSALS FOR REPAIRING THE U. S. A. T. "WARREN": Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 15th, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, for repairing the U. S. A. T. "WARREN, will be received here until 10:00 A. M., July 10, 1909, and then opened. Information and blank forms furnished upon application to the Representative of the Consular Service of the United States at Hongkong, Shanghai, Singapore and Chief Quartermaster, Philippines Division, Manila, P. I. Envelopes containing proposals should be endorsed "Proposals for repairing the U. S. A. T. 'WARREN,' to be opened at 10:00 A. M., July 10, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PROPOSALS FOR LIGHT DRAFT TWIN SCREW RIVER STEAMER.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 5, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, will be received here until 10:00 a. m., June 16th, 1909, and then opened, for the construction and delivery to this department, complete and ready for service, of one (1) Light Draft Twin Screw River Steamer. Blank forms and full information will be furnished upon application to the United States Consular representative at Hongkong, Shanghai and Singapore, and the Chief Quartermaster, Philippines Division, Manila, P. I. Proposals should be enclosed in sealed envelopes, endorsed "Proposals for Light Draft Twin Screw River Steamer, to be opened at 10:00 a. m., June 16th, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PROPOSALS FOR SIX (6) STEEL LORCHAS.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 1, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, will be received here until 10:00 a. m., June 15, 1909, and then opened, for the construction and delivery to this department, complete and ready for service, of six (6) steel lorchas. Blank forms and full information will be furnished upon application to the United States Consular representative at Hongkong, Shanghai and Singapore, and the Chief Quartermaster, Philippines Division, Manila, P. I. Proposals should be enclosed in sealed envelopes, endorsed "Proposals for Six (6) Steel Lorchas, to be opened at 10:00 a. m., June 15, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—SEALED PROPOSALS or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sixty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

PROPOSALS FOR FURNISHING TOWBOAT.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 15th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing and delivering to the Quartermaster's Department, U. S. Army, Manila, P. I., one seagoing, single screw, towboat, will be received here until 10:00 a. m., June 1st, 1909, and then opened. Certified check in ten per cent (10%) of amount of bid must accompany proposals. Blank forms and full information furnished upon application to this office. Envelopes containing proposals should be endorsed "Proposals for furnishing towboat, to be opened at 10:00 a. m., June 1st, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

**Advertised in the* FAR EASTERN REVIEW.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

AMERICAN-KOREAN ELECTRIC COMPANY.—It is reported that negotiations are under way for the sale of this company to Japanese capitalists.

WUHU ELECTRIC LIGHT PLANT.—The new plant recently installed at this place began operations on March 1st and has given very satisfactory service.

RAILWAY GAS PLANT.—The South Manchuria Railway will begin work on its gas plant at Dalny about the last of June. All the equipment has been ordered.

WIRELESS FOR HONGKONG.—The establishment of a wireless station is now being agitated at Hongkong in view of the importance of the port and its value to shipping.

JAPANESE ELECTRICAL INVENTIONS.—An encouragement fund has been started by the Electrical Association of Japan for rewarding successful inventors of electrical appliances.

CHINESE LONG DISTANCE TELEPHONES.—A German and an American company have each asked for a franchise from the Chinese Government to instal a system that would connect Peking, Hankow, Nanking and Canton.

DAIREN-CHEFOO CABLE.—The preliminary survey preparatory to the laying of the cable by the joint Japanese-Chinese company between these two points is now under way. The service is expected to be operating about November.

SHANGHAI WIRELESS.—The Chinese government has directed that no wireless stations be permitted installed by foreigners in the Settlements. The claim is that such installation affects the interests of the Chinese Telegraph Company.

ANTUNG ELECTRIC LIGHT AND MOTOR CO.—This company which has only been operating for the last three months under joint Chinese and Japanese management is meeting with success. There are over 1,500 lights being supplied at the present time.

TOKYO ELECTRIC LIGHT COMPANY.—This company is raising a loan for the purpose of constructing a power house on the lower course of the Katsuragawa below the site of the present plant. It is expected to complete this section of the extension work in four years.

ORIENTAL ELECTRICITY COMPANY.—This is the name adopted by the organization formed by the General Electric, the Shibaura Engine Works and the Tokyo Electric Company with a capital of yen 4,000,000 of which the American company takes 2,120,000 yen.

KEIHAN ELECTRIC RAILWAY.—The equipment of this railway that is to connect Kyoto with Osaka, double track, 30 miles in length, has been ordered from Messrs. Dick, Kerr & Co., Messrs. Williams and Robinson and Messrs. Babcock & Wilcox. These English firms will supply the electrical plant, the turbines, and the boilers respectively.

JAPANESE TELEPHONES.—The number of telephones installed in Tokyo and Osaka at the close of 1908 was 30,000; the number in Kyoto, Nagoya, Kobe and Yokohama, 12,000; and the number in other parts of the Empire 30,300, making a grand total of 72,300. It is proposed by the government to increase this total by 61,230 between the present year and 1912.

TOKYO ELEVATED.—The plan to construct an electric elevated in this city has been extended to include about 31 miles of track with a view to dividing the system into two main lines intersecting each other. One of these lines will connect Shinagawa and Sanja and the other Shunjiku and Honje. The application made by some Japanese capitalists is now being considered.

RAILWAYS AND RAILWAY SUPPLIES

YUNNAN RAILWAY.—The prospect for the completion of this line to Yunnan by the end of 1910 is more promising.

PEKING-HANKOW RAILWAY.—The net proceeds remitted for the quarter ended March 31st, 1909, amounted to Tls. 200,000.

MACAO-CANTON RAILWAY.—The prospect is brighter for the early construction of this line with joint Portuguese and Chinese capital.

DAIREN-SUCHCHIATUN DOUBLE TRACK.—The doubling of this track will be completed this fall and operations will begin by December.

MUKDEN'S NEW STATION.—The work on this new station being constructed by the South Manchuria Railway is being pushed with vigor.

RAILWAY SHADE TREES.—The South Manchuria Company has secured 60,000 shade trees from Japan for distribution among the different stations.

SHANGHAI-HANGCHOW-NINGPO RAILWAY.—The section between Sungking and Fongking was opened on April 14th and completed the Kiangsu section covering a distance of 112 Li.

SIAM NORTHERN RAILWAY.—The construction work on this line has been abandoned and will not be resumed for three or four years or until the line to Paknampo develops sufficient revenue to make it a paying quantity.

CANTON-KOWLOON.—At the laying of the foundation stone of the Canton Railway station, April 8th, by Sir Frederick Lugard, Mr. Grove, the Chief Engineer, stated that he anticipated a through service from Kowloon to Canton by July, 1911.

HONGKONG RAILWAY CONSTRUCTION ACCOUNT.—During the year 1908, $6,378,000 were expended for construction and charged out from the following receipts: Advances from Loan Fund (£330,000), $3,294,693.87; Crown Agents' advances, $1,437,092.62; Drafts on Crown Agents, $290,768.02; Reimbursement due to Public Works Extraordinary, $1,356,136.50.

SOUTH MANCHURIA RAILWAY TRAFFIC REPORT.—The gross tonnage of the freight transported by the South Manchurian Railway during the past six months from October last to March 21st of the present year was 1,542,507 and the total fare of transportation 7,052,765 yen. These figures show an increase of 581,731 tons in freight and 3,179,642 yen in fare, compared with those of the corresponding period of the preceding year.

TRANS-MONGOLIAN LINE.—The Minister of Posts and Telegraphs has made a proposal to construct the extension of the proposed Kalgan-Urga Railway to Maimaicheng and make connections with the Siberian Railway by way of Kiakhta. Russian capitalists are also interested in the construction of a line from Muisovaya a point on the Siberian Railway, to Kiakhta to connect with the proposed Trans-Mongolian line.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

SUNGARI RIVER IMPROVEMENTS.—Dredging plants have been purchased at Tientsin and will begin operations at an early date.

LIAOYANG WATERWORKS.—The estimated outlay for this installation will not exceed yen 20,000 and the work started this month.

YOKOHAMA WATERWORKS.—The municipality is raising a loan of yen 7,000,000 to cover the expense of waterworks expansion.

HOIHOW HARBOR WORKS.—A survey of this harbor is being made with a view to deepening the channel to receive cargo boats freely.

THE CHINESE WATERWORKS COMPANY.—This company has issued a prospectus attracting attention to its flotation at a capital of Tls. 1,250,000.

FRENCH CONCESSION, SHANGHAI.—Provision is made by the budget for the expenditure of Tls. 159,300 for new roads during the fiscal year.

ARTESIAN WELL AT HANKOW.—A well with the capacity of 2,000 cubic meters an hour has been successfully operated by the French Syndicate.

YINKOU WATERWORKS.—The laying of the water mains in the principal street is almost completed and the service pipes are being installed as orders are registered.

DREDGER FOR KUANTAN.—The Federated Malay States dredger Kuantan is to be employed dredging the river at Kuantan where there is great exposure to shipping owing to the dangerous bar during stormy weather.

HAIHO CONSERVANCY FORESTRY DIVISION.—The planting of young trees in the old river bed with the purpose of lining the borders of waterway with trees as far as Tientsin is the latest enterprise of the board.

TAMSUI HARBOR WORKS.—The accumulation of silt in this harbor has become so serious a menace to steamers entering the port that several dredging plants will be engaged deepening the harbor during the fiscal year.

DAIREN ROAD BUILDING.—Out of an appropriation of yen 1,400,000 for the purpose of constructing streets and roads over yen 500,000 have been expended. The total amount named is to cover the work until the end of 1910.

SEKIANG RIVER CONSERVANCY.—The viceroys of Kwantung and Kwangse are preparing joint plans to dredge the Sekiang River and otherwise preserve the waterways from silting, thus preventing serious damage from floods.

LANCHOU-FU BRIDGE.—The construction of this important bridge over the Yellow River is almost complete. Its length is over 800 feet and two of the spans are 160 feet in length. It has a width of 40 feet for cart and passenger traffic.

HAWAIIAN DOCK REVISION.—The size of the large dock for the Naval Base at Pearl Harbor will be reduced from 1,195 to from 600 to 700 feet in view of the shortage of funds provided. The latter size will be big enough to accommodate a 30,000 ton battleship.

LIAO RIVER IMPROVEMENTS.—The improvements here will consist of the immediate building of a weir with lock at the opening and provision made by a diverting wall to prevent the channel suffering from the severe current. The river will also be deepened in several places.

QUARANTINE STATION AT PULAU JEREJAK.—The construction of this institution which will cost about $500,000 has commenced. An extensive sea-wall will be built and a reservoir is contemplated by the plans. The point selected for the site is directly opposite the town of Penang.

PORT OF MIIKE.—This port, which was recently opened by the Mitsui Bussan Kaisha, has a tidal basin newly constructed with an area of 160,000 square yards and a depth of 30 feet minimum. The quay wall is 1,380 feet in length and capable of accommodating steamers of 10,000 tons. The loading machines have a capacity of 5,000 tons of coal a day. The work was extended over a period of five years.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

CHINA MERCHANTS S. N. CO.—The Grand Council proposes placing this company under the control of the Board of Posts and Communications.

PARACELS FISHING INDUSTRY.—The Viceroy of Canton proposes to encourage the industry on these islands and a surveying party is now making a reconnaissance.

SHIPYARD AT PETUNA.—The Governor of Heilungkiang has decided to establish a yard at this point for the purpose of constructing steamers and docking them as well as junks for the carrying of coal from the Kanho coal mine.

PORT ARTHUR HERRING FISHERIES.—Japanese and Chinese fishermen have established a village about five miles north-east of Port Arthur and are engaged in catching herring and bonito that abound there in large quantities.

CHINESE WHALING COMBINE.—A trust designed to control the whaling industry in Japan has been organized by the amalgamation of the four leading companies with a capital of yen 7,000,000. The combine will be known as the Meiji Suisan Kaisha.

KIANGNAN DOCK EXTENSION.—The Commissioners for Navy Reorganization of China's Navy have decided to extend the Kiangnan Dock at Shanghai as they are most conveniently located for the docking of vessels of the Pehyang and Nanyang squadron.

MOTOR LAUNCH BUILT AT SHANGHAI.—The motor vessel Asiatic, erected by the New Engineering and Shipbuilding Works at Shanghai, was launched last month. It was built for the Asiatic Petroleum Company for the Yangtsze service. It is 164 feet over all; breadth 25 feet; a loaded draught of 5 feet, 6 in., and a capacity of 340 tons dead weight. Her speed is 6.2 knots. She is equipped with three 40 h.p. petroleum motors.

MINES, MINERALS AND THE METAL TRADE

ONODA CEMENT FACTORY.—The factory of this company at Choushuitsu has begun operations.

KIRIN COAL MINE.—The discovery has been reported of a large seam or coal at Suifen Ting. The Mining Bureau is making an investigation.

FORMOSAN COAL PRODUCT.—The value of the coal product of Formosa reached approximately yen 500,000, almost doubling the output of the previous year.

AMBER QUARRY IN MANCHURIA.—The discovery of an amber deposit near Hsinmintun has been reported at Dalny, but this has not been officially confirmed.

YENTAI COAL MINES.—The work of installing equipment in these mines promises to be completed by the end of the year when a daily output of 300 tons may be expected.

POWLETT COAL FIELDS.—The discovery of coal in Victoria, Australia, has been investigated and it develops that the quantity available will exceed 20,000,000 tons.

RUSSIAN OIL IN MANCHURIA.—The imports amounted to over 340,000 cases during the year 1908. Russia's total trade in the Far East for the year amounted to approximately 1,000,000 cases.

PAULO LAUT COAL CO.—This company has now 32 Europeans employed with a force of 1,200 laborers. Coal is quoted 17s. Its value as a steam producer is about 80 per cent of that of Welsh coal.

CHINESE COAL FOR JAPAN.—The *P. & I. Times* announces that a shipment of 3,000 tons of coal was made to Japan by the Chinese Engineering and Mining Co. through their agents as a trial shipment.

KYUSHU COLLIERY AND STEAMSHIP COMPANY.—According to the latest reports this company is now prepared to open up their coal fields in Hizen province where 5,000,000 tsuba in area is under their control.

PYENG YANG COAL MINES.—The output of the Government mines at this point is approximately 4,000 tons a month and it is its purpose to increase the output to 5,000 next year. The quality is said to be superior to Japanese coal and sells for yen 6.50 to $7.00 a ton.

YANGTSZE ENGINEERING WORKS INAUGURATED.—The ceremony of opening this new institution took place April 21st. It represents one of the most important engineering developments in Hankow for many years. The plant covers an area of 30 acres and includes equipment and machinery for the construction of steel bridges as a specialty. The motive power is electricity.

THE MURORAN STEEL WORKS.—Considerable progress has been made, in spite of a severe winter, with the Muroran Works of the Nihon Sei-ko-sho, or Japan Steel Works; the Company which has been formed by the two well-known English firms of Vickers Sons and Maxim, Ltd., and Sir W. G. Armstrong Whitworth & Co. in conjunction with the Hokkiado Coal Co. to manufacture war material in Japan according to the systems of the two English Companies. It is expected that work will be commenced in the gun machinery shops during the summer, but the steel melting and forging shops will take some time longer before they are ready to start work. In the meantime the Japanese Government have placed with the Armstrong and Vickers Companies the order for the material necessary for the two large battleships of the *Dreadnought* type, now being built in Japan.

FINANCIAL AND MISCELLANEOUS

SIBERIA COLONIZATION.—According to reports, the number of immigrants expected to settle in Siberia this year will exceed 900,000.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.—This organization will hold its first annual meeting in March, 1910, at Manila and Baguio.

TIEHLING PRODUCE AND MONEY EXCHANGE.—This exchange was opened last month. The transaction will be on a cash basis and no fees are charged.

MONGOLIAN FURS.—Russian buyers are reported to have contracted for 400,000 roubles worth of wool and urs for delivery this year with Mongolian dealers.

COPRA INDUSTRY IN WELLESLEY.—The Prye Rubber Cocoanut Plantations Co. was recently formed with a capital of £90,000 to operate in the Province of Wellesley.

ALASKA, YUKON AND PACIFIC EXHIBITION.—This exhibition will be held from June 1st, 1909, to October 16th, inclusive, and many exhibits from the Far East have been arranged for.

FORMOSAN SUGAR INDUSTRY.—The new installations of sugar mills will increase the production about 7,000 tons daily and it is expected that the value of the sugar crop will exceed yen 200,000,000.

KEDAH RUBBER.—The first rubber company since the signing of the Anglo-Siamese treaty to develop the industry in Kedah has been organized with a capital of $200,000 according to the *Penang Gazette*.

RUSSIAN CIGARETTES IN MANCHURIA.—The cigarette factories established by Russian capitalists along the border of the Japanese zone in Southern Manchuria are reported to be doing an extensive business.

RUBBER PLANTATIONS INVESTMENT TRUST.—This company has been formed with a capital stock of £500,000 and has for its purpose the making of advances on products, amalgamation of groups of estates, loans on shares and other securities, and underwriting new issues. The company is a most desirable institution for the encouragement of the many industries of Malaya.

*LONDON, ENGLAND, METAL MARKET

April 1909.

COPPER	£	s.	d.		£	s.	d.
Tough cake and Ingot	60	10	0	..	61	0	0
Best Selected	61	0	0	..	61	10	0
Electrolytic	61	0	0	..	61	10	0
Sheets and sheathing	71	0	0	..	—		
Flat bottoms	74	0	0	..	—		
STANDARD †Cash	57	6	3	..	57	7	6
STANDARD †Three Months	57	18	9	..	58	0	0
Copper tubes, seamless per lb.	0	0	9½	..	—		
Lake	61	10	0	..	62	0	0

* Less 3½ per cent. † Net.

ALLOYS.	£	s.	d.		£	s.	d.
BRASS: Wire	0	0	6¼	..	—		
,, Tubes (solid drawn)	0	0	7¾	..	—		
,, Sheets	0	0	6¾	..	—		

TIN.	£	s.	d.		£	s.	d.
English ingots, f. o. b.	133	10	0	..	134	10	0
,, bars	134	10	0	..	135	10	0
,, refined	135	10	0	..	136	10	0
Straits... Cash	133	15	0	..	133	17	6
Straits... Three months	134	15	0	..	135	0	0
Australian spot	133	15	0	..	134	5	0
Banka (in Holland) Cash	137	1	3	..	—		
Banka (in Holland) Three months	137	10	0	..	—		

LEAD.	£	s.	d.		£	s.	d.
Spanish or soft foreign	13	12	6	..	13	13	9
English pig, common	13	17	6	..	14	0	0
,, L. B	14	7	6	..	—		
,, sheet and bar lead	14	17	6	..	—		
,, pipe	15	7	6	..	—		
,, red	16	7	6	..	—		
,, white	18	0	0	..	—		
,, patent shot	16	17	6	..	—		

SPELTER.	£	s.	d.		£	s.	d.
Silesian ordinary brands	21	5	0	..	21	7	6
,, special brands	21	15	0	..	22	0	0
English Swansea	21	10	0	..	22	0	0
Sheet zinc	24	15	0	..	—		

ANTIMONY.	£	s.	d.		£	s.	d.
Antimony	29	10	0	..	31	10	0
,, Crude	13	10	0	..	14	10	0
,, Ore (basis 50%)	7	10	0	..	8	10	0

QUICKSILVER.	£	s.	d.		£	s.	d.
Flasks, 75 lbs. warrants	8	7	6	..	—		

MANGANESE. Ore, c.i.f., U. K. ports.	Per unit.*				Per unit.*		
1st quality, 50 per cent. and upwards	0	0	9	..	—		
2nd quality, 47 per cent. to 50 per cent	0	0	8	..	—		
3rd quality, 40 per cent. to 47 per cent	0	0	7	..	—		

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.				Per ton.		
98-99 per cent. guaranteed	170	0	0	..	175	0	0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

* *Mining Journal.*

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

Item	Unit	U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
ALUMINUM, Sulphate Com'l	lb	1.10-1 75
ANTIMONY, needle	"	.05-06
ARSENIC, white	"	.05-055
red	"	.07½-.70
ASPHALTUM.—		
Trinidad	ton	2.00-30.04
California	"	21.00-27.00
BLEACHING POWDER, 35%	100 lbs	1 25-1 00
BLUE VITRIOL	lb	5 00
BONE ASH	"	.02¾-04
BORAX	"	.04½-05½
*CAPS detonating	M	-7.50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" " "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.75
*Alsen		3.00
CLAY, CHINA.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
***COALS.—**		
Batan, at Mines	ton	3 00
Australian	"	5 50
COPPER	lb	.13-.14
*DYNAMITE 40%	"	.20
FELDSPAR ground best	sh. ton	10 50-15.00
FIRE BRICK, American	M	30.00-40 00
imported	"	30.00-45.00
FIRE CLAY, St. Louis Mill	ton	2 50
FUSE—Blasting	1,000 ft	7 50
GRAPHITE—Ceylon, lump	lb	.04-.10
Large lump	lb	.07-.10
GYPSUM—Fertilizer	sh ton	7 00
Powdered	sh. ton	12.00-20.00
LEAD	lb	-.04
MAGNESITE-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
MANGANESE, Ore, 80-85%	sh. ton	20.00-50.00
MERCURY, export flask	75 lbs	36 00-39 00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.06½-.06¾
Ochre, Am. Com	sh. ton	8 50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.44½-4
White lead, Am. dry	lb	.05¾-0
Am. in oil	"	.06½-.06
Zinc, white, Am. extra dry	"	.05¾-.05
PHOSPHATES, Acid	per unit	.65-.7
Florida hard rock	lg. ton	10.25-10 5
Land pebble 68%	"	5.25-5 5
POTASSIUM Cyanide (98-99%)	lb	.18-.19
PLATINUM	oz	28 00
PLATINUM, Scrap	oz	17.00
SPELTER	lb	.045-.046
NICKEL Small lots	lb	.50-60
*POWDER, black blasting A	lb	.15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½-.13
Imported, arsenical "	"	.12-.12½
SALTPETER crude	100 lbs	4.50-5.00
SILICA, Lump quartz	lg. ton	5 00-6.00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2.7
SILVER	oz	.55½-.55
SODIUM cyanide (100% KCN)	lb	.1
*STEEL, octagon drill	lb	.
SULPHUR, Louisiana prime	lg. ton	22.
Roll	100 lbs	1.85-2.
Flowers sublimed	"	2.20-2.
TALC—Domestic	sh. ton	15.00-25.
Italian, best	"	35.00-40.
TIN	lb	.9½
ZINC, Sheet	100 lb	7.
Dust	lb	.05¾-.06

*Manila quotation.

HEMP STATISTICS, 28th APRIL, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, APRIL, 1909.

Date	*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East & California*	*Continent.*	*Australia*	*Other Pts.*	*Total Bales*
1909		68,606	37,597	116,513	15,645	16,284	3,695	8,782	267,122
April 3	Banca	2,300				2,850			5,150
" 2	Zafiro	4,550				950		700	6,200
" "	Yuensang					175		300	475
" 1	Eastern							150	150
" "	Kaifong......Cebu	50	25						75
" 6	Kaifong	350							350
" 7	Flintshire	4,570	1,450			1,872			7,892
" 2	Taming.......Cebu	50				285			335
" 4	Kumeric				5,170			219	5,389
" 10	Clan MacInnes				2,122				2,122
" 8	Yawata Maru							222	222
" "	Rubi							265	265
" 13	Tean	590				350			940
" "	Changhsa						468		468
" 16	Indrasamha			6,365					6,365
" "	Yuensang					250		400	650
" 17	Zafiro							272	272
" "	Aymeric......Cebu	115			83				198
" 19	Kumano Maru						675		675
" 20	C. Lopez & Lopez	1,563	2,875			64			4,502
" "	Cranley......Cebu	750							750
" "	Aymeric				274			2	276
" 22	Minnesota				1,825			107	1,932
" "	Kaifong......Cebu					200		50	250
" 23	Tydeus.......Cebu	4,383	4,172			850			9,405
" "	Inveric							400	400
" "	Loongsang							100	100
" 24	Indrasamha..Cebu			13,535					13,535
" "	Rubi							975	975
" "	Prinz Sigismund						100		100
" 26	Lowther Castle			14,338					14,338
" 30	Yuensang							150	150
		87,877	46,119	150,751	25,119	24,130	4,938	13,094	352,028

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, May, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14 500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5|- @ ex 1|8 ⅞—$26.024, making in all $47.966 for 1908..	5½	$950 sales £89-10
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3|6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$188 buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7|6 making 15|- for 1907..	5½	Tls. 105
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-07	Final of $17 making $47 for 1907, and interim of $30 for account 1908	6	$805 buyers
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$235 sales
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7¾	$106 buyers
Hongkong Fire Ins. Co , Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8½	$337½ buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$12 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7	$36 sellers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $ 79,428 $ 25,344	$20,279	30-12-08	Final of $1½ making in all $2½ for 1908	8¼	$30½ buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,700	31-12-07	6|- for 1907 on pref. shares only at ex. 1|9 11|16, $3.154	4	$51 buyers $53 buyers
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½ 7	Tls. 51 sales Tls. 53 sales
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a|c 1908	....	58|6- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$25 buyers $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 481,479 e Tls. 44,100 i Tls. 81,200 q Tls. 7,000	Tls. 2,215	31-12-08	Final of Tls. 1½ making Tls. 2½ for 1908	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3¾	$137½
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	—	$16
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 132½
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1|6 (Coupon No. 11) for year ending 29-2-08	7	Tls. 18 sales
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1|-—48 cents	....	$8
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986 $53,601	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	—	$55 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	10	$79 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	6	Tls. 87 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 22,818	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6	Tls. 168 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	6	Tls. 101 buyers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	—	$20½ sales
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	—	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	—	$18½ buyers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	7½	$85 buyers
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908..	6¾	$99 buyers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7¾	$9 buyers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. ,50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Final of Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	7	Tls. 118 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 129	31-12-08	Final of Tls. 2 making Tls. 5 for 1908	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44 buyers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4½	Tls. 123 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	6	$8½ buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 91 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 111 buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911	31-12-08	Tls. 50 for 1906	....	Tls. 410 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£648	31-12-08	1s. 10½d. for 1907=$1.037	10	$10¼ sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	10	$12 buyers
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	8½	$5
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	....	$9¼ sellers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*i* 10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	7	$17
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	10¼	$8.90 sales
H. Price & Co., Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	8¾	$23 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6½	$18½ b. ex. div.
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	12½	$155 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8¼	$24 sales
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / *i* Tls. 63,914 / 21 Tls. 547,500	Tls. 316,682	31-10-08	First quarterly dividend of Tls. 12½ for % 1909	4½	Tls. 1065 buyers
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $1	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 / 4	$14 / $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	*d* Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¾	Tls. 115 sellers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	6	Tls. 132½ sellers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 220,000	Tls. 23,038	31-12-08	Final of 30/- making 45/- for 1908	....	Tls. 415 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7½	$5
Tientsin Waterworks Co., Ld.	1901	Tls, 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / *e* Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end, 31-12-1908	5	$10½
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6½	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / *e* $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6¾	$9 sales
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$2½ buyers

LOANS AND DEBENTURES.	AGENTS' FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	3rd Div. of Gold cents 50 making gold $1½ for year ended 30th June 1907.	Dec. 31, 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd.	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1908
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	Interim of 80 cents for 1908	Dec. 14, 1908
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4-08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1908	Feb. 8, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08	Dec. 1908
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do 1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 181,800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do 1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do 1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1894	,, 108	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 108	,, 50,000	" 50,000	" 100	6 ,,	Do
do 1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do 1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do 1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures 1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, May, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	6.00	6.50	6.00
1907	$300,000	225,000	22,500y	10	10	....		Bruang Ltd.	6.00	6.25	6.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.00	7.50	7.50
1903	£500,000	444,769	444,769a	1	1	....		Duff Development Co., Ltd.	3.75	4.00	4.00
1907	$400,000	375,000	37,500b	10	10	....		Kanaboi, Ltd.	1.00	1.25	1.25
1901	£60,000	60,000	60,000	1	1	....	2/- interim for 1908	Kinta Tin Mines, Ltd.	9.50	9.75	9.50
1906	£100,000	100,000	100,000	1	1	....		Kledang Tin Mining Co., Ltd.	1.50	3.00	3.00
1905	$150,000	99,000	9,900c	10	10	14,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	4.00	4.00
1906	£120,000	120,000	120,000	1	1	....		Lahat Mines Ltd.	7.75	8.25	8.25
1906	£30,000	30,000	30,000	1	1	....		Malaya and Siam Corporation, Ltd.	....	5/-	5/-
1906	$450,000	450,000	45,000	10	10	....		Malacca Tin Dredging Co., Ltd.	2.25	2.75	2.25
1906	£250,000	179,500	500,000h	5/-	5/-	....		Pahang Consolidated Co., Ltd.	24/6	25/6	24/6
			54,500	1	1	....		" " " 7% Pref.	....	....	nominal.
1907	£100,000	80,000	80,000i*	1	1	....		Pengkalen, Ltd.	6.75	6.85	6.75
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50	4.00	3.50
1907	$450,000	300,000	30,000g*	10	10	....		Rahman Hydraulic Tin Ltd.	....	7.50	7.50
1905	£27,000	21,750	21,750e	1	1	....	1/- interim during 1907	Rambutan, Ltd.	....	6.50	6.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	6.75	7.00	7.00
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	6.25	6.50	6.50
1905	£40,000	40,000	40,000	1	1	....		Redhills Tin Mining Co., Ltd.	2.10	2.30	2.30
1898	Gs2,500,000	2,500,000	25,000	100	100	....	100% for year ending 31-12-08	Redjang Lebong Mining Co., Ltd.	....	....	1015.00
1900	$110,000	110,000	22,000	5	5	....	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.10	1.25	1.25
1907	$550,000	500,000	50,000o*	10	10	....		Salak South, Ltd.	5.75	6.25	5.75
1907	£80,000	80,000	80,000	1	1	....		Sempam Tin Mines, Ltd.	1.25	2.00	2.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	7 25	7.50	7.25
1899	$230,000	230,000	23,000	10	10	....	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	4.50	5.00	4.50
1907	£90,000	70,000	70,000z	1	1	....	-/6 interim for 1908	Tekka, Limited	10 00	10.25	10.00
1902	£160,000	149,185	149,185f	1	1	....	5/- during 1907	Tronoh Mines, Ltd.	7.85	8.00	7.85
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1	....	10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	5.5.6	5.7.6	5. 5. 6.
			103,500	1	17/6	....		" " " *Contributory*	5.2.6	5.5.0	5. 2. 6
1905	$200,000	126,000	12,600f*	10	10	7,400	12½% interim for 1908	Balgownie Rub. Estate Ltd. *Fully paid*	28.50	29.00	28.50
1904	£30,000	20,187 10/-	19,000	1	1	....		Batu Caves Rub. Co., Ltd.	4.2.6	4.5.0	4. 2. 6
			4,750i	1	5	....					
1906	80,000	70,000	70,000v*	1	1	....	5% for year ending 31-3-08	Batu Tiaga (Selangos) Rubbes Co., Ltd.	1.7.0	1.8.0	1. 7. 0
1907	£30,000	21,000	18,000n*	1	1	....		Bukit Lintang Rubber Estates, Ltd	1.6.0	1.7.6	1. 6. 0
			6,000	1	10/-	....		" " " *Contributory*	13/-	15/-	13/-
1903	£70,000	66,700	66,700j	1	1	....	12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	6.10.0	7.0.0	6. 10. 0
1906	£35,000	27,000	6,000	1	1	....		Castlefield (K.) R. Estate, L., *Fully pd*	1.8.6	1.12.6	1. 8. 6
			24,000	1	17/6	....		" " " " " *Contributory*	1.6.0	1.10.0	1. 6. 0
1906	$150,000	125,000	12,500k	10	10	....		Castlewood Rubber Co., Ltd.	3.75	4.00	4.00
1904	£16,000	16,000	10,000	1	1	....	17½% interim for 1908	Cicely Rubber Estates Co., Ltd	7.0.0	7.5.0	7. 0. 0
			6,000	1	1	....	20% interim for 1908	" " " " 5% *Pref*	....	....	7. 5. 0
1905	£75,000	58,507	55,007l	1	1	....	5% interim for 1908	Consolidated Malay Rub. Estates, Ltd	3.17 0	4.2.6	4. 2. 6
			7,000	1	10	....					
1906	110,000	102,500	102,500u*	1	1	....		Damansara (Selangor) Rubber Co., Ltd.	2.10.0	2.11.6	2. 10. 0
1906	£310,000	259,530	181,454m	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.16.0	2.17.6	2. 16. 0
			123,546	1	12/6	....		" " " " *Contributory*	1.17.6	2.0.0	1. 17. 6
1905	£50,000	36,500	23,000	1	1	....		Kapar Para Rubber Estates, Co., Ltd.	2.11 0	2.15.0	2. 12. 6
			27,000	1	10/-	....		" " " " " "	....	....	1. 17. 6
1906	£180,000	180,000	180,000	1	1	....	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.16.6	1.18.6	1. 16. 6
1907	100,000	81,000	90,000r*	1	18/-	....		Labu (F. M. S.) Rubber Co., Ltd.	1.9.0	1.10.0	1. 9. 0
1907	£320,000	232,395	197,395c*	1	10/-	....		Lanadron Rubber Estates, Ltd.	2.9.0	2.10.0	2. 10. 0
			70,000	1	1	....		" " " *Contributory*	1.9.6	1.10.0	1. 10. 0
1906	Gs 175,000	175,000	540	250	250	....		Langen Rub. and Cocoanut Co., Ltd.	....	250	250.
			160	250	250	....		" " " " " *Deferred*	....	250	250.
190$	£125,000	75,000	60,000p*	£1	£1	....		Ledbury Rubber 2tates Ltd.	1.5.6	1.7.6	1. 5. 6
			40,000	£1	7/6	....		" " "	11/6	13/-	11/6
1895	£100,000	98,324 8/-	883,244d*	2/-	2/-	....	60% for year ending 31-12-08	Linggi Plantations Ltd., *Ordinary*	17/-	17/3	17/-
			10,000	1	1	....		" " " 7% *Pref*	....	....	1. 0. 0
1906	£300,000	300,000	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	2 11 0	2.12.6	2. 11. 0
			185,000	1	1	....		" " *Ordinary*	2.7.0	2.8.6	2. 7. 0
1903	£30,000	22,500	22,500o	1	1	....	45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	8.5.0	8.10.0	8. 5. 0
1906	$250,000	225,000	22,500	10	10	....		Ragalla Rubber Co., Ltd. *Ordinary*	14.50	15.00	15.00
		25,000	2,500	10	10	....		" " " 8% *Preference*	14.50	15.00	15.00
1904	£20,000	16,943 8/-	20,000a*	1	1	20.000		Sagga Rubber Company Limited	2.7.6	2.10.0	2. 7. 6
1904	$100,000	100,000	1,000j*	100	100	....	25% for year ending 31-1-09	Sandycroft Rubber Co., Ltd.	400 00	425.00	425.00
1897	£100,000	76,800	48,000s*	1	1	....		Seafield Rubber Co., Ltd.	2.0.0	2.2.6	2. 0. 0
			48,000	1	12/-	....		" " "	1.10.0	1.13.0	1. 10. 0
1898	£30,000	30,000	300,000	2/-	2/-	....	25% interim for 1908	Selangor Rubber Co., Ltd.	1.4.6	1.5.0	1. 4. 6
1905	$500,000	500,000	5,000	100	100	....		Singapore Rubber Co. Ltd.	115.00	125.00	115.00
1903	$250,000	250,000	2,500	100	100	....		Singapore & Johore Rub. Co., Ltd.	145.00	160.00	145.00
1906	£175,000	174,615	174,615q*	1	1	....	3% for year ending 31-3-08	Straits Settlements (B.) Rub. Co., Ltd.	1.0.6	1.0.9	1. 0. 6
1906	£110,000	100,000	100,000k*	1	1	....		Sungei Kapar Rubber Co., Ltd.	2.5.6	2.10.0	2. 5. 6
1907	£70,000	44,750	14,000	1	1	....		Sungei Salak Rubber Co., Ltd.	1.7.6	1.10.0	1. 7. 6
			41,000	1	15/-	....		" " " *Contributory*	1.2.6	1.3.6	1. 2. 6
1904	£50,000	45,710	41,920p	1	1	....		Sungei Way (Selangor) Rub. Co., Ltd.	2.10.0	2.15.0	2. 10. 0
			7,580	1	10	....		" " " " "	....	....	1. 10. 0
1907	200 000	154,000	154,000t*	1	1	....		United Serdang (S.) R. Plantations, Lt.	1.19.6	2.2.6	1. 19. 6
1904	£60,000	50,600	506,000q	2/-	2/-	....	25% interim for 1908	Vallambrosa Rubber Co., Ltd.	16/-	19/6	19/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688b*	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025m*	100	100	....		Brunei Oil Royalty, Ltd.	....	100.00	100.00
1907	$1,500,000	1,099,672	27,083l*	'10	10	....	5% interim for 1908	Eastern Smelting Co., Ltd.	6.65	6.75	6.75
			118,406	10	7	....					
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	140.00	142.50	142.50
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 14,500,000u 250,000v	£2-0-0 per share and bonus of 5/- at ex.- 1/8¾ half year ending 31-12-08	Hongkong & Shanghai Bank'g Corpt'n	....	....	86.0. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	....	90.00	90.00
			6,000	100	....	....	7% for year ending 31-10-08	" " 7% *Pref*	....	100.00	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-08	Maynard & Co., Ltd.	18.50	19.00	19.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	62.50	67.50	67.50
			3,750	100	100	....	7% for year ending 31/12/08	" " " " 7% *Pref.*	93.00	100.00	93.00
1903	$600,000	250,000	25,000r	10	10	....	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	8.25	8.75	8.25
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	....	50.00	50.00
1903	£400,000	400,000	400,000	1	1	....		Singapore Electric Tramways, Co., Ltd.	4/-	4/3	4/.
1904	$160,000	112,000	1,120e*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	....	130.00
1890	$500,000	49,000	4,980h*	100	100	760,000w	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	195.00	197.50	195.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409x	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	50.50	51.00	50.50

a 11,282 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h 100,000 " *Ord.*; 45,500 " *Pref.*
i 6,250 "
j 3,300 "
k 2,500 "
l 12,993 "
m 4,140 "; 8,60 subscribed by employees
n 1,905 unissued.
o 7,500 "
p 500 to be issued to employess
q 94,000 unissued.
r 35,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "
*a** 4,595 part-paid shares
*b** 916 unissued
*c** 52,605 unissed.
*d** 16,756 "
*e** 480 "
*f** 7,400 "
*g** 15,000 unissued.
*h** 20 "
*i** 20,000 "
*j** 221 7½% Debentures.
*k** 10,000 unissued
*l** 4,511 "
*m** 475 "
*n** 6,000 "
*o** 5,000 "
*p** 25,000 "
*q** 385 forfeited
*r** 10,000 unissued.
*s** 4,000 "
*t** 46,000 "
*u** 7,500 "
*v** £10,000 Convertible 6% Debentures.

DEBENTURES

Name	Amount	Buyers.	Sellers.	Closing Quotations
Howarth Erskine, Ltd. 6%	$ 600,000	....	1%	1% prem.
Riley, Hargreaves & Co., Ltd. 6%	284,000	....	1%	1% prem.
Sandycroft Rub. Co., Ltd. 7½%	22,100	....	....	par.
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....	....	nominal
Singapore Municipal 6%	400,000	....	....	20% prem. nom.
" " 5%	1,878,000	7%	....	7% prem.
" " 4½%	1,600,000	3%	5%	3% prem.
" " 4%	602,900	6%	par.	5% discount
Straits Engineering Syndicate, Ltd. 6%	45,000	....	par.	par.
Tanjong Pagar Dock Board 5%	1,050,000	par	....	par.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MARCH, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	65 Sales
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATON.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 98.70
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 97.70
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 91.90
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 91.90
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 90.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 92.10
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.20
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 95.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 97.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 97.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 97.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 160.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	4%	June and Dec.	,, 59.65
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 46.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 73.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 32.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 113.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 97.80
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 95.20
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 39.20
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 66.00
Nisshin Boseki Kabushiki Kaisha	50	12½	......	——	,, 13.25
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 21.05
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 35.00
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 78 75
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 51.00
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 78.50
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 55.95
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 84.90
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 93 20
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.50
Otaru Timber Company, Limited	50	50	......	March and Sept.	,, 13.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 125.40
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 102.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 12.00
Tokyo Stock Exchange Company	50	50	11⅔%	June and Dec.	,, 144.40
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 128.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 410	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 190	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, —	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 110	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 75	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,100	,, 1,150	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co.	,, —	,, —	,, 50	1906	£ 40,000	4,000	£ 10	£4, per Share	—	—	—

PHILIPPINE SHARE REPORT

MAY 1ST, 1909

NAME	WHEN ESTABLISHED	AUTHORIZED CAPITAL	ISSUE VALUE OF SHARE	NO. OF SHARES	SUBSCRIBED	PAID UP	RESERVE	WORKING %	DATE	LAST DIVIDEND	CLOSING QUOTATIONS
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909	......	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1908	190 nom.
Benguet Consolidated Mining Co.	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909	......	No Sellers.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co.	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No Sellers.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	......	......	₱40 buyers
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Export & Import Lumber Co.	......	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	......	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908	₱80 sellers
*Germinal Cigar Factory	......	500,000	500	1,000	1,000	500	₱285,000	......	......	6% for year 1908 and 6% on capital	700 sellers
H. E. Heacock Co.	1909	100,000	100	1,000	800	100	......	......	......	First year	No sellers.
Insular Lumber Co.	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd.	1908	150,000	20	7,500	500	20	......	......	......	First year	......
*La Concha Button Factory	......	75,000	100	750	750	100	......	......	......	10% for year 1908	₱110 sellers.
Lambert, Springer Co.	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luson Stevedoring Co.	1909	250,000	25	10,000	4,200	25	......	......	......	First year	......
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Walter E. Olsen Co., Inc.	1909	500,000	100	5,000	2,033	100	......	......	......	First year	No sellers.
Paracale Gold Dredging Co.	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	£1.10 s.
Palomar Park Amusement Co.	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co.	1907	150,000	100	1,500	1,235	100	......	......	......	......	No sellers.
Philippine Publishing Co.	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908	₱50
Port Banga Lumber Co.	1908	100,000	1.000	100	934	93,400	None.	40,000	First Saturday in January	None	No sellers.
The Philippine Gold Dredging Co.	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd.	......	750,000	10	7,500	7 500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co.	......	150,000	1	150,000	70,000	1	......	......	......	First year	......
The Rosenstock Pub. Co.	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co.	1908	4,000,000	200	20,000	......	......	......	......	......	First year	No sellers.
Tarlac Railway Co.	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	......	No sellers.
Union Hemp Machine Co.	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers.
Zamboanga Cold Storage Co.	1903	40,000	400	100	200	200	₱ 8,500	......	May 1st, 1909.	20%	₱120.

* John T. Macleod's share list.

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906		$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907		$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
*Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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Hongkong and Shanghai Banking Corp.
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Nicolas, Tsu
San Nicolas Iron Works

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Anderson & Co., W. H.
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DIVING APPARATUS
A. J. Morse & Son

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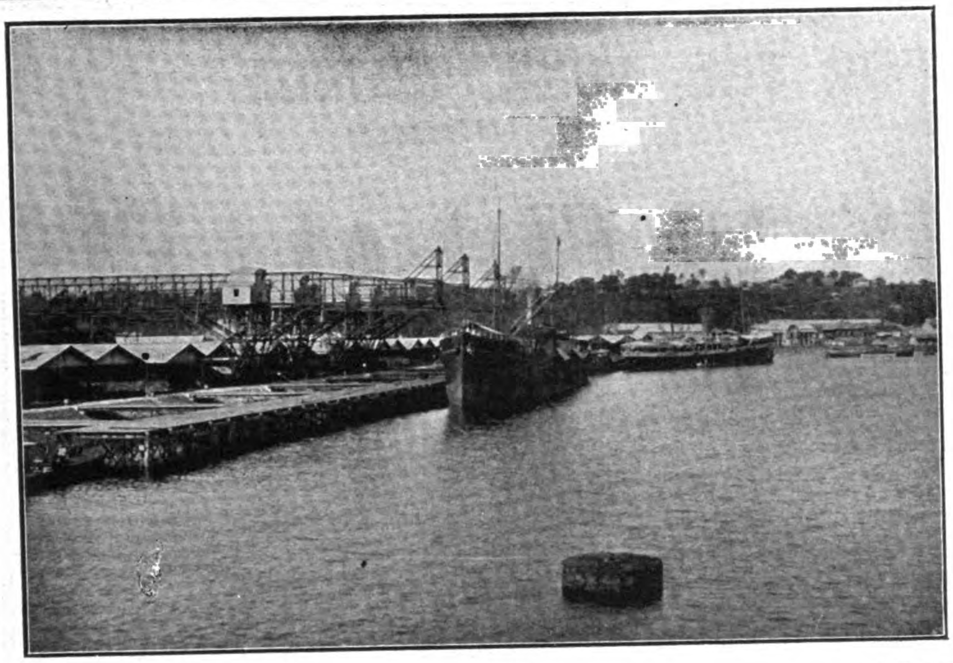

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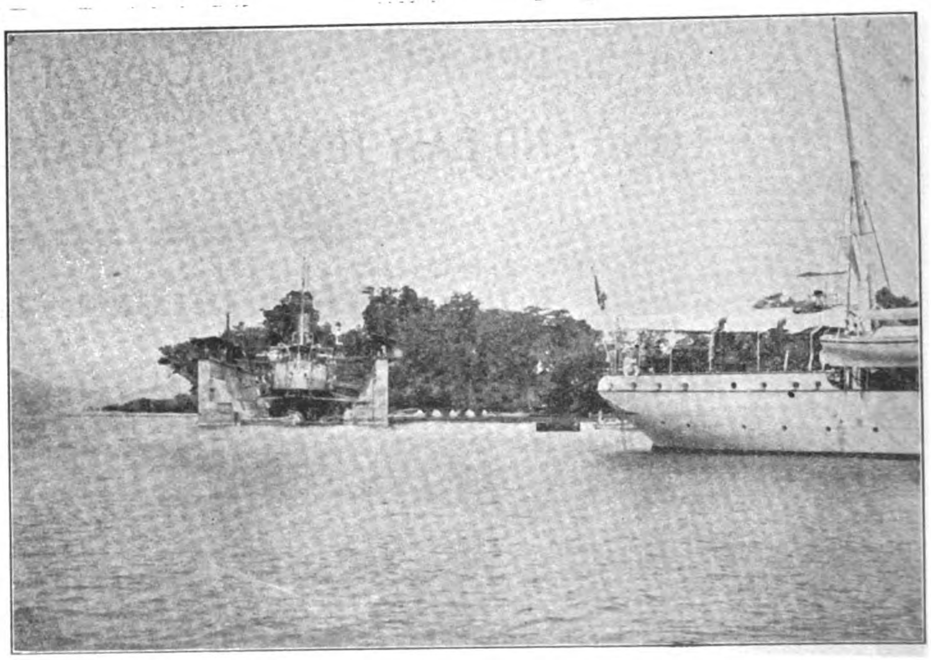

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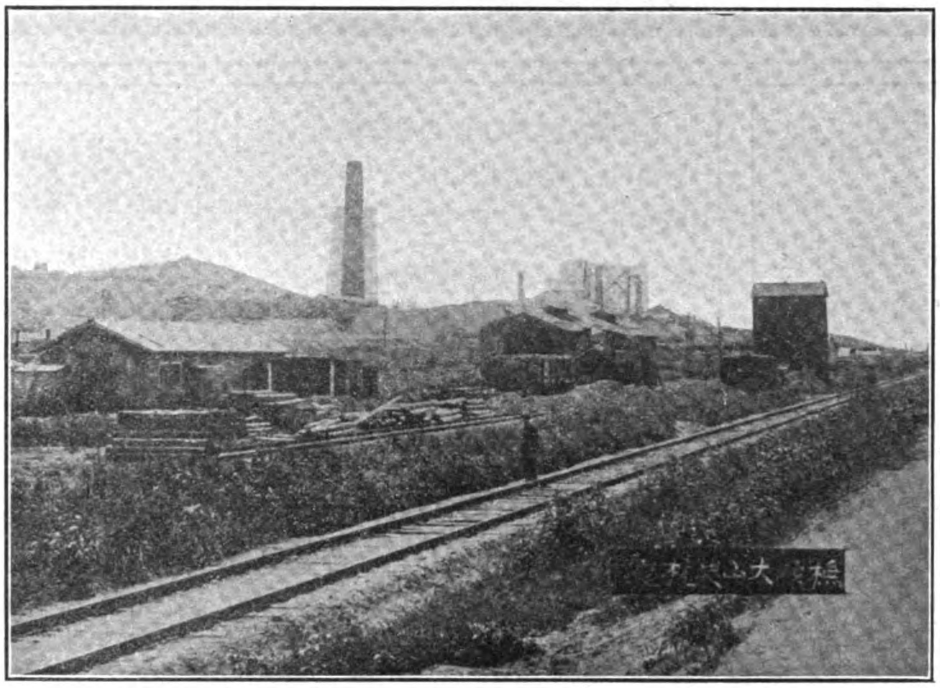

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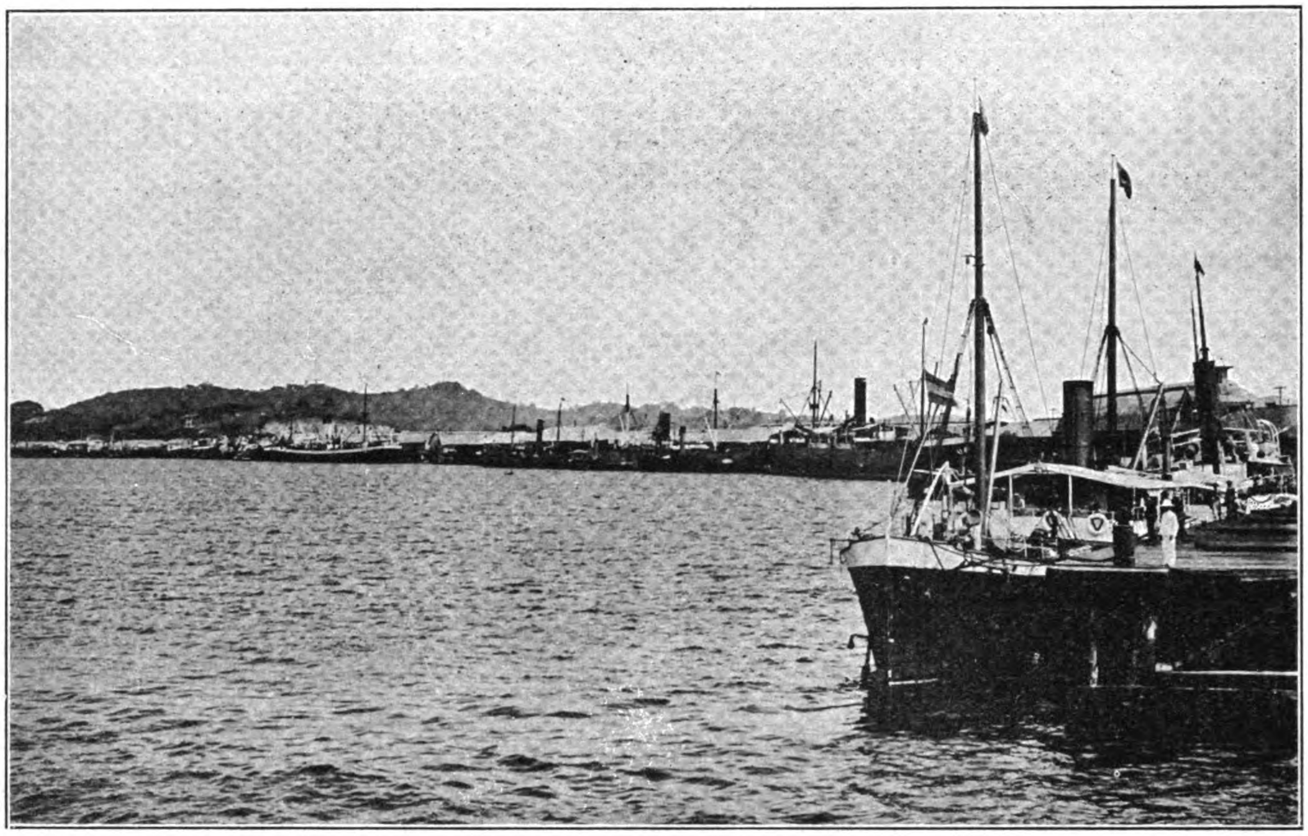

GENERAL VIEW OF THE TANJONG-PAGAR DOCK WHARVES

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Engineers, Shipbuilders and Ship Repairers, Boilermakers, Iron and Brass Founders, Wharfingers, etc.

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VICTORIA GRAVING DOCK	450′	65′	19′
ALBERT GRAVING DOCK	480′	60′	20′
NO. 1. GRAVING DOCK	415′	42′	15′-6″
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TANJONG PAGAR WHARF—Length two mile; depth at low water, spring tides	20′ to 45′
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Powerful sheers and cranes for lifting boilers, etc. (45 tons). Extensive godowns, capacity 300,000, tons.

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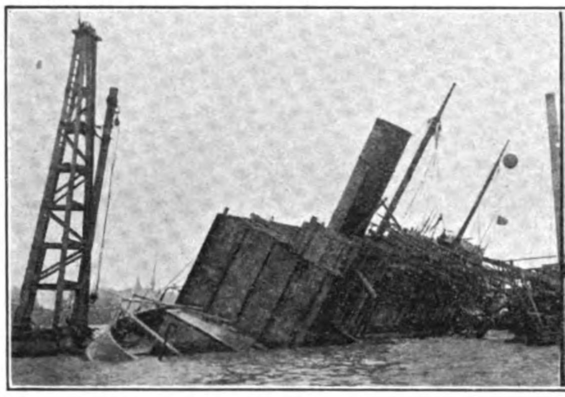
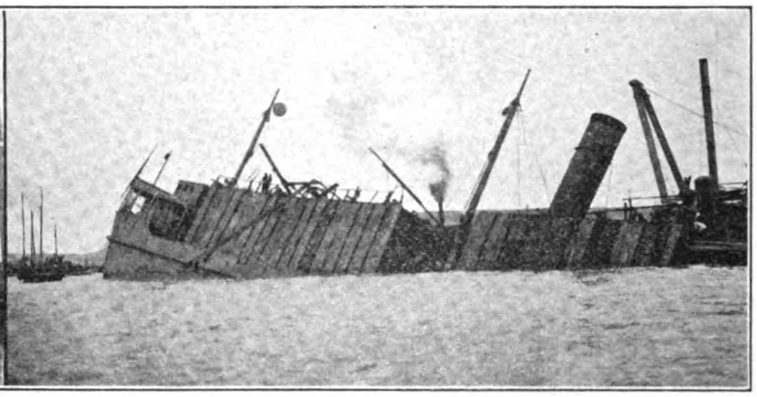
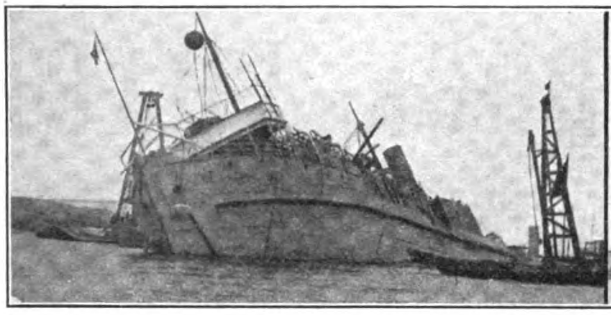


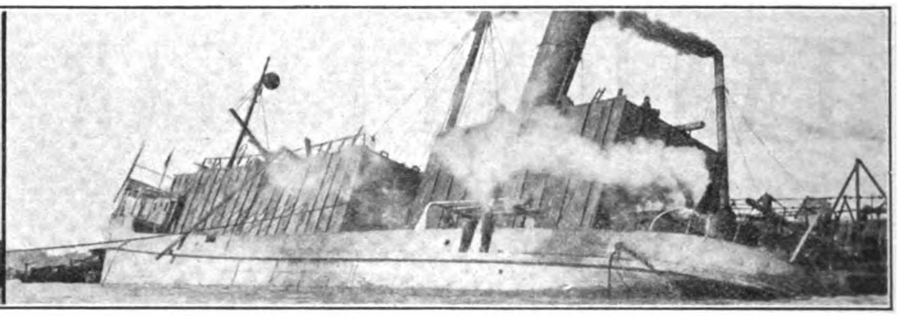
PUMPING OPERATIONS.—STERN VIEW



PUMPING OPERATIONS PROCEEDING.—PORT SIDE VIEW



BOW VIEW



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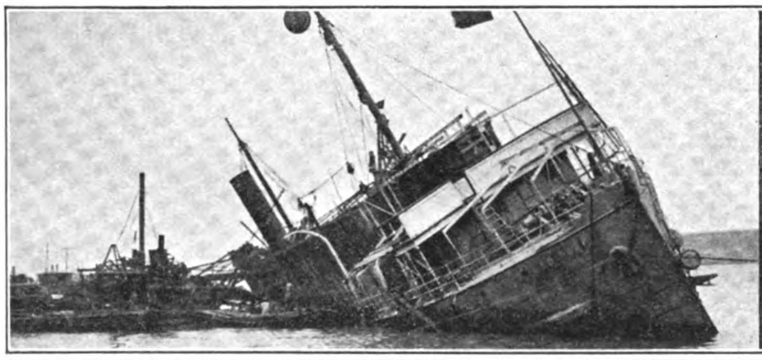

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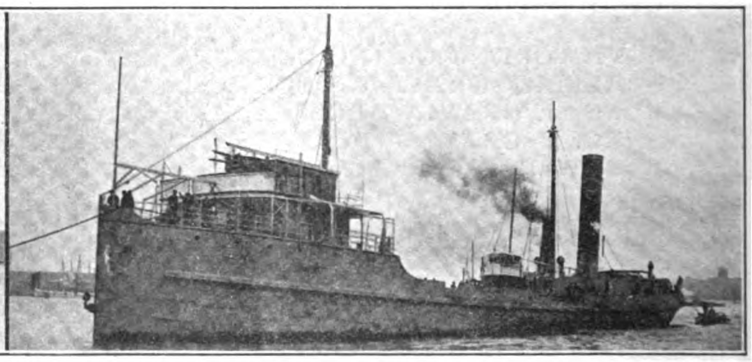

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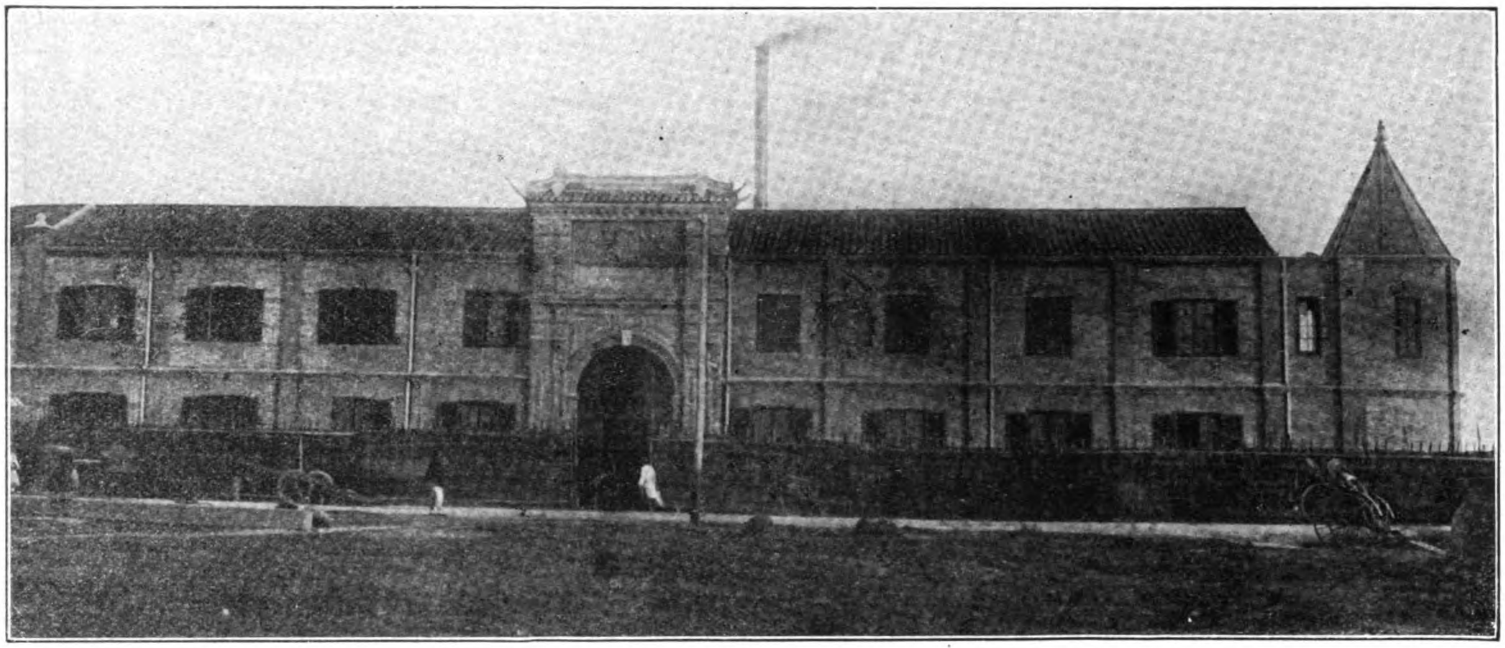

VIEW OF MACHINE SHOPS, FOUNDRY AND WORKS

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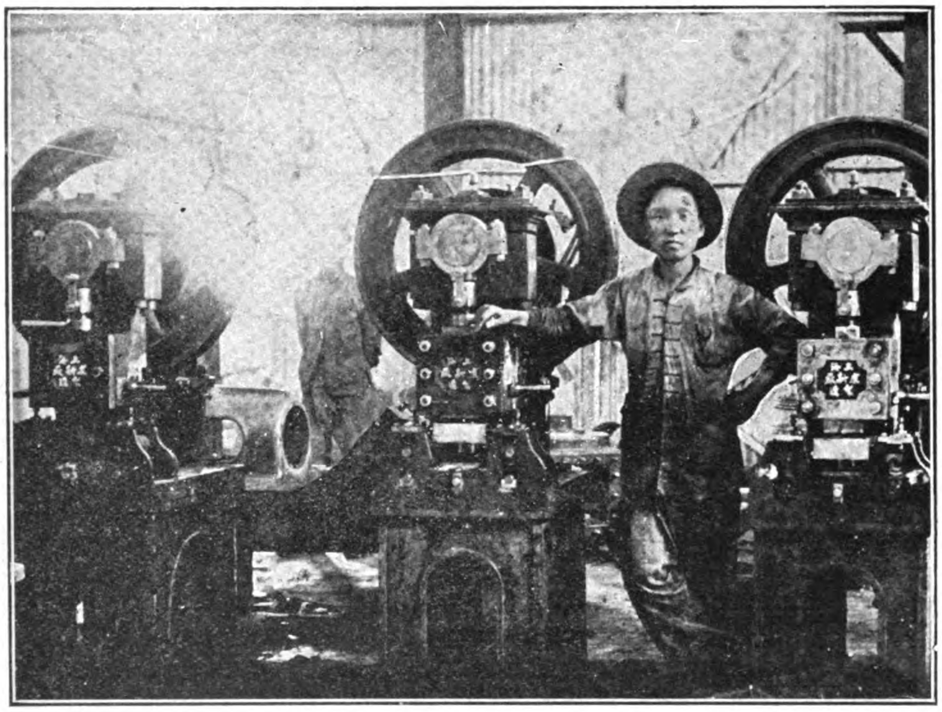

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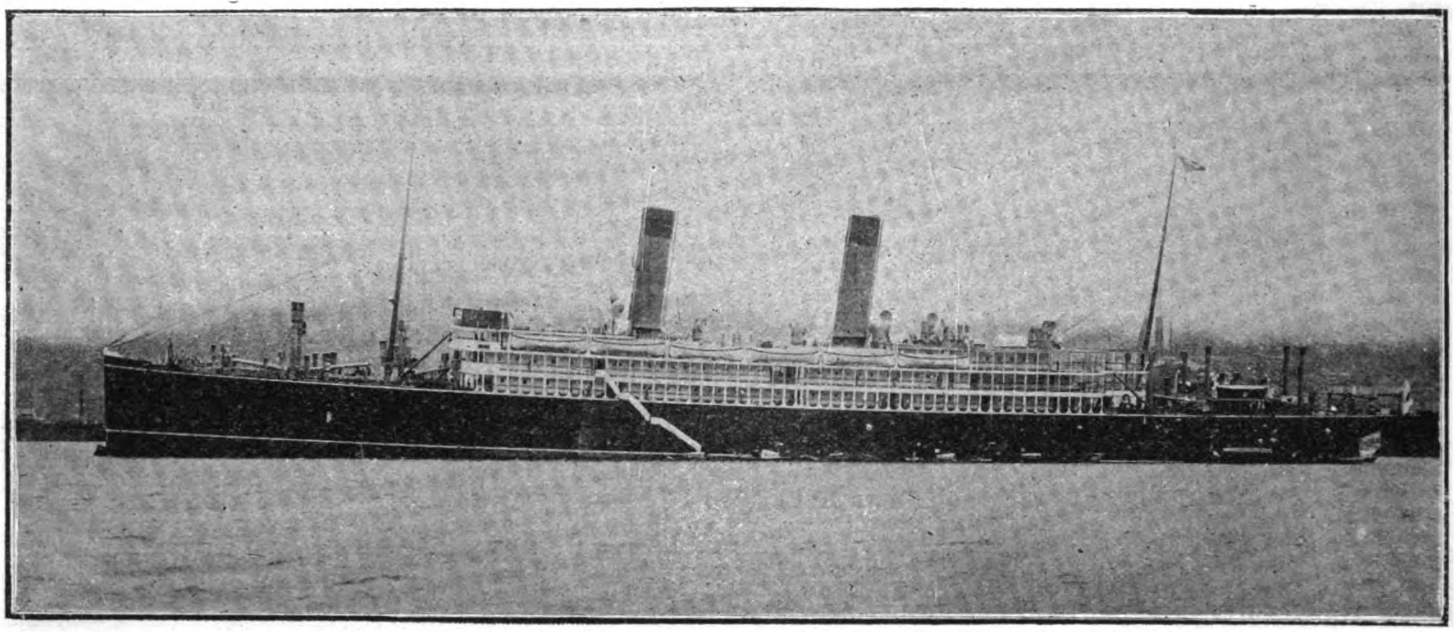

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EXTREME LENGTH	523	FT.	EXTREME LENGTH	371	FT.	EXTREME LENGTH	722	FT.
LENGTH ON BLOCKS	513	,,	LENGTH ON BLOCKS	360	,,	LENGTH ON BLOCKS	714	,,
WIDTH OF ENTRANCE ON TOP	88	,,	WIDTH OF ENTRANCE ON TOP	66	,,	WIDTH OF ENTRANCE, TOP	99½	,,
,, ,, ,, ,, BOTTOM	77	,,	,, ,, ,, ,, BOTTOM	53	,,	,, ,, ,, BOTTOM	88½	,,
WATER ON BLOCKS AT SPRING TIDE	26½	,,	WATER ON BLOCKS AT SPRING TIDE	22	,,	WATER ON BLOCKS AT SPRING TIDE	34½	,,

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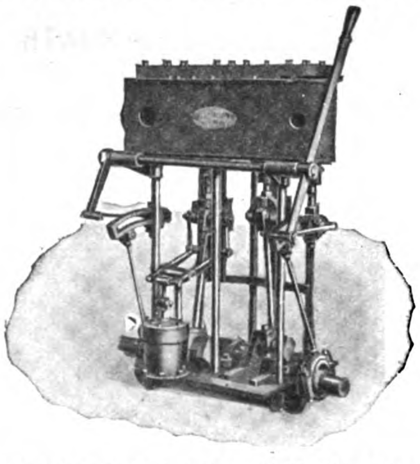

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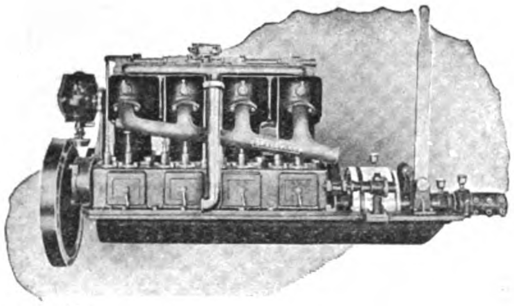
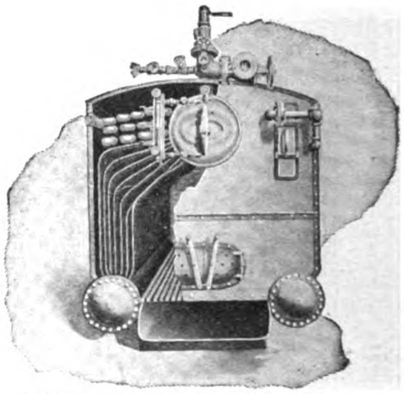


"Speedway" Gasoline Motor



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OUR "SPEEDWAY" LAUNCHES HOLD THE RECORD FOR SPEED AND ENDURANCE—RECORD BREAKING LAUNCHES:—ARGO, ARTFUL, THERE-SHE-GOES, ZIPALONG, JAPANSKY, WINNINISH, COLONIA, QUEEN, SKEETER

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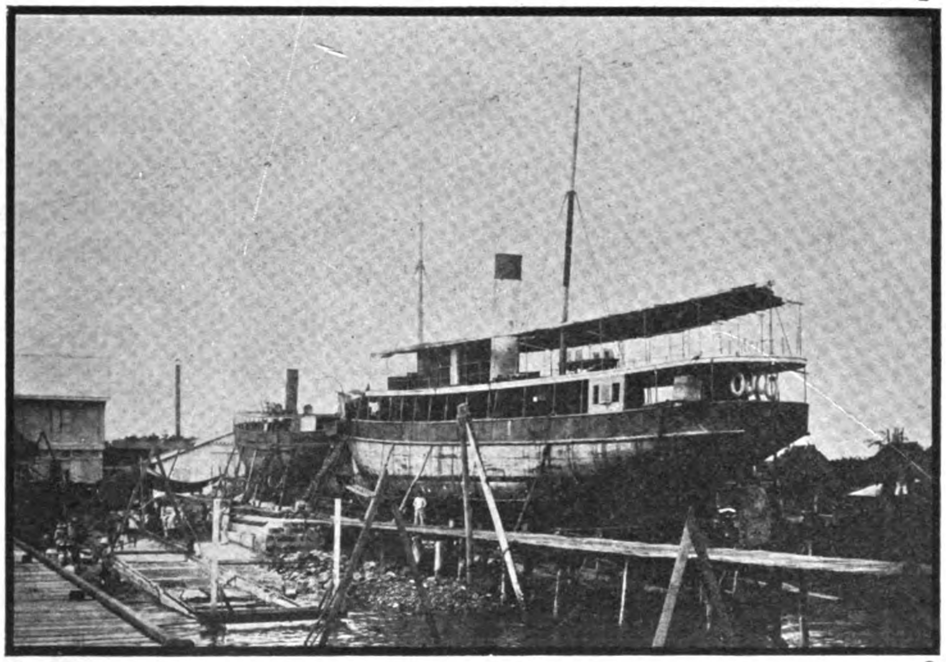

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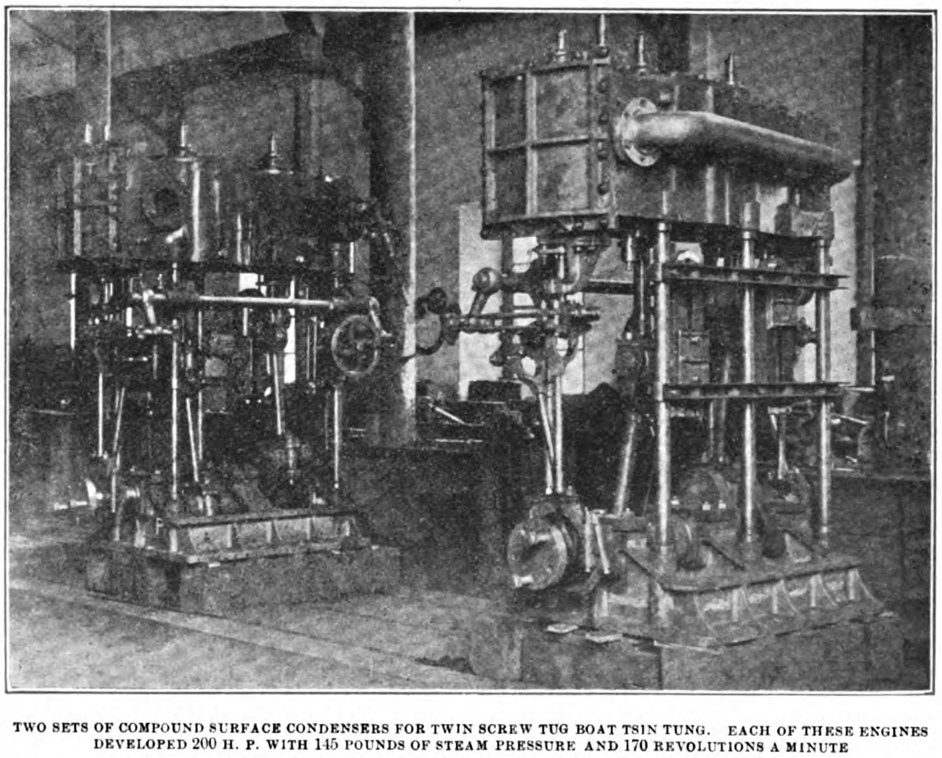
The new machine and boiler shops, and the foundry and shipbuilding plant are equal to any this side of Suez.



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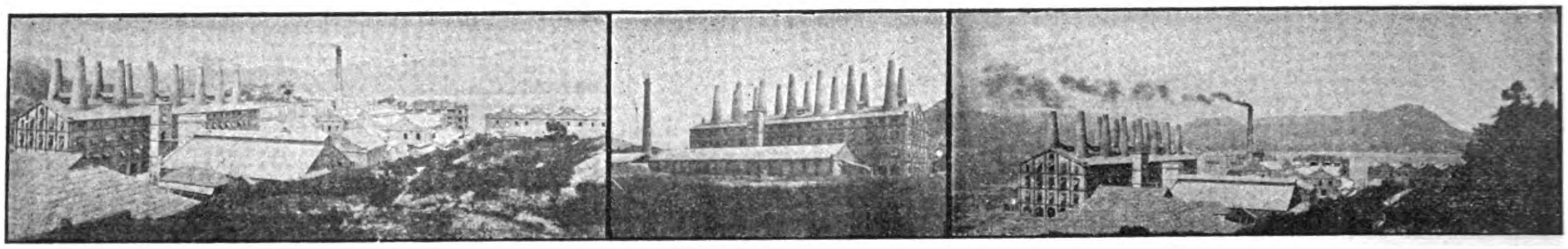

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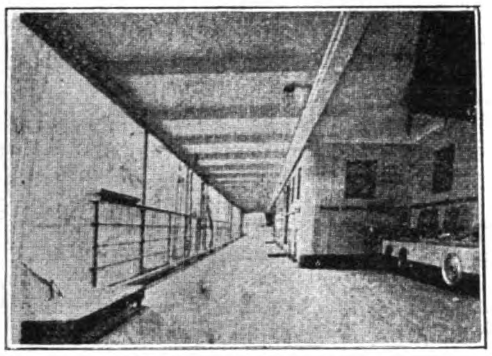

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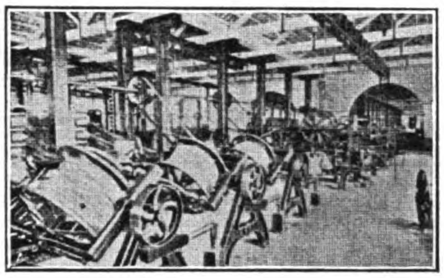

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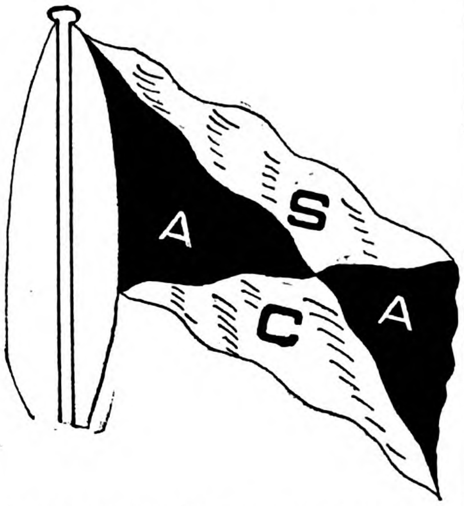

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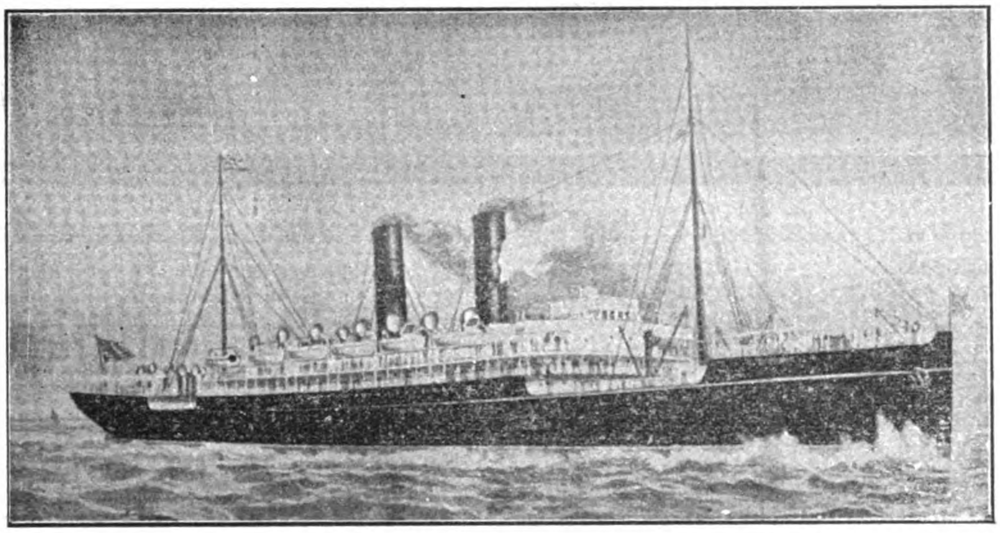

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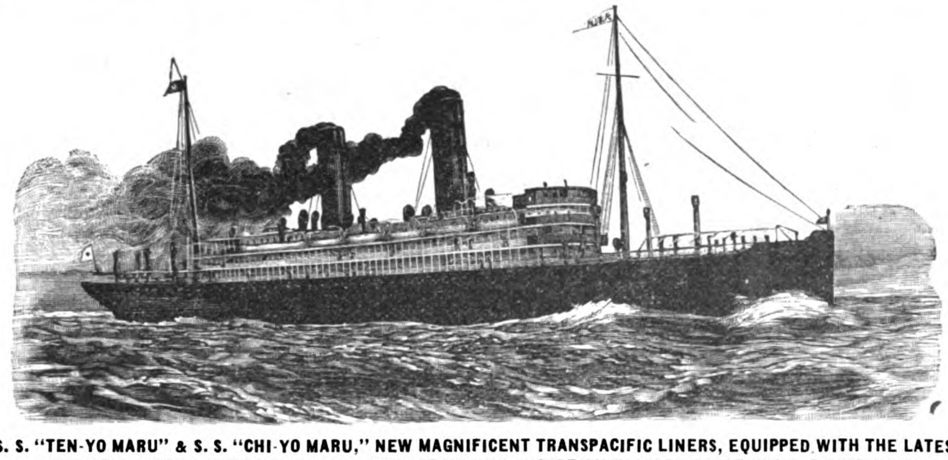

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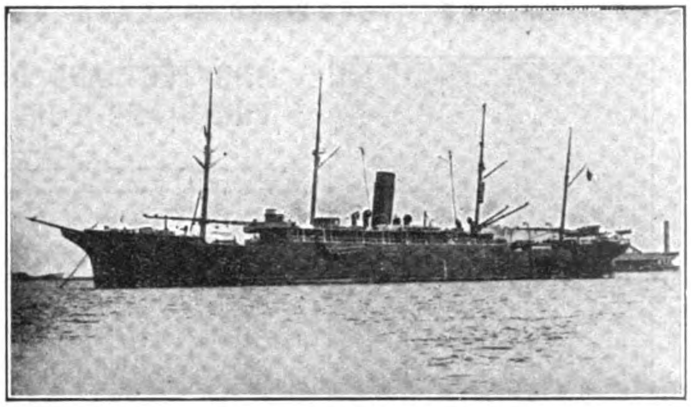

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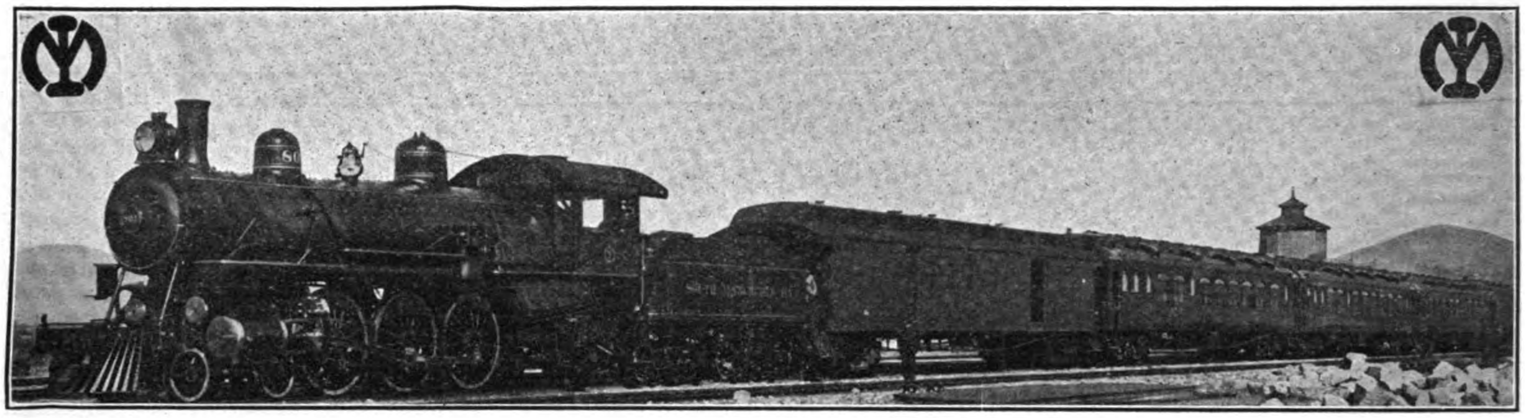

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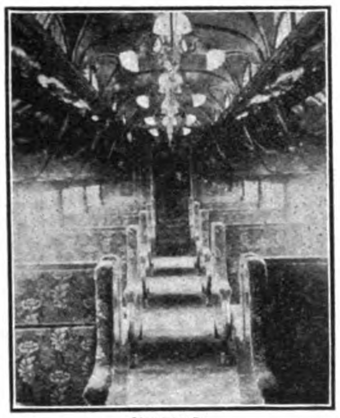

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Ar. —Mukden	8 50 p m.	,,	,,	,,
Lv. — ,,	9.15 p.m.	,,	,,	,,
Ar. —Changchun	5 a.m.	Mon.	Wed.	Sat.
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Arrive—Changchun (,,)	6 00 p.m.	,,	,,	,,
Lv. — ,,	7 p.m.	,,	,,	,,
Ar. —Mukden	2.10 a.m.	Wed.	Fri.	Sun.
Lv. — ,,	2 30 a.m.	,,	,,	,,
Ar. —Dairen	12.30 p m	,,	,,	,,
Lv. — ,, (*Steamer*)	afternoon	,,	Sunday	
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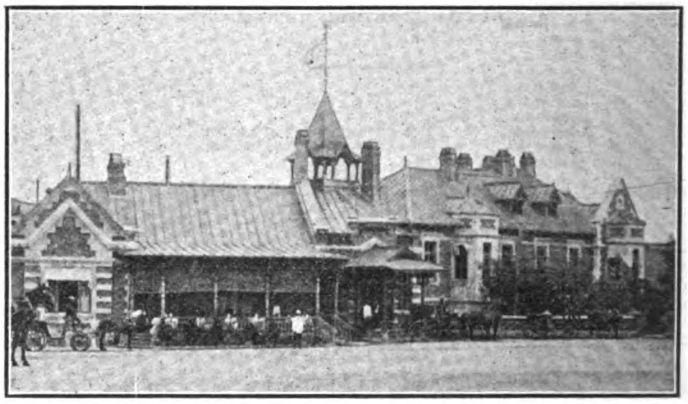

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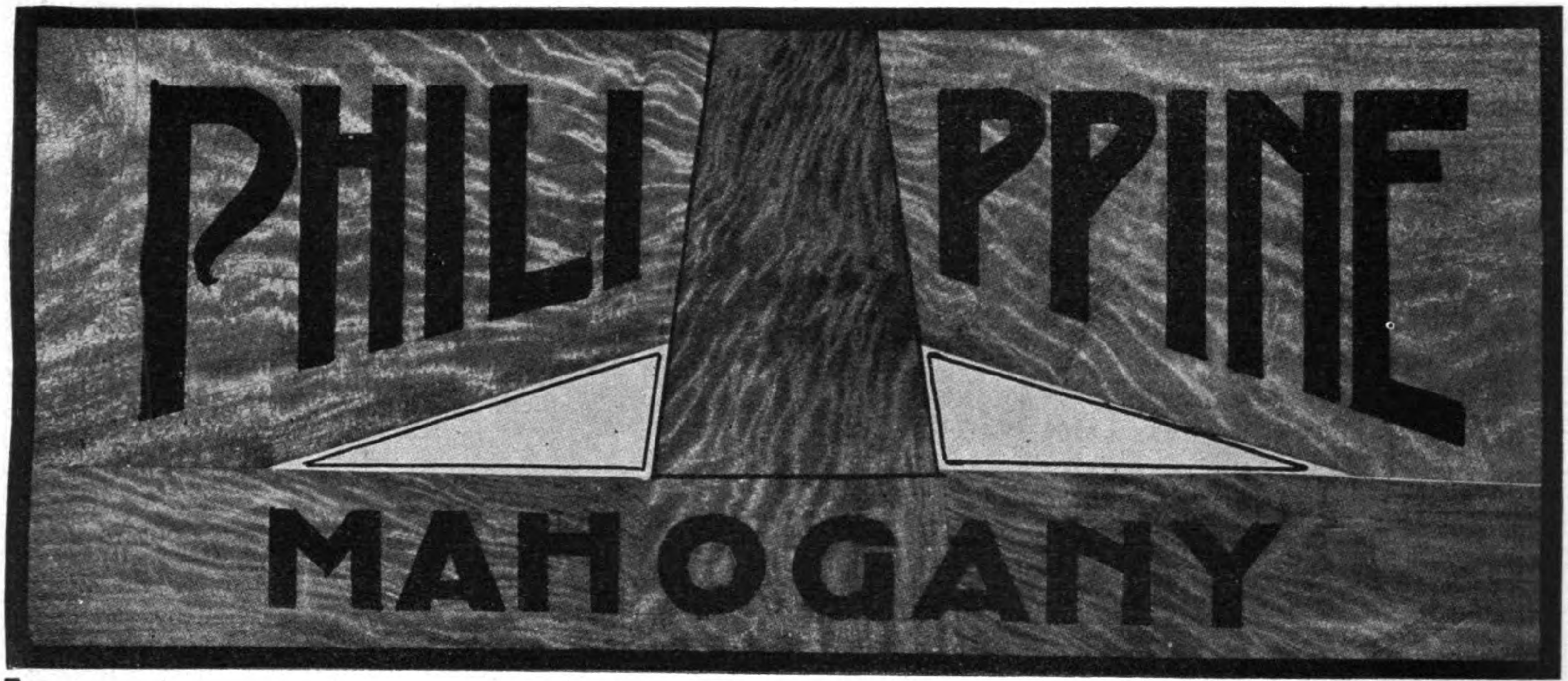

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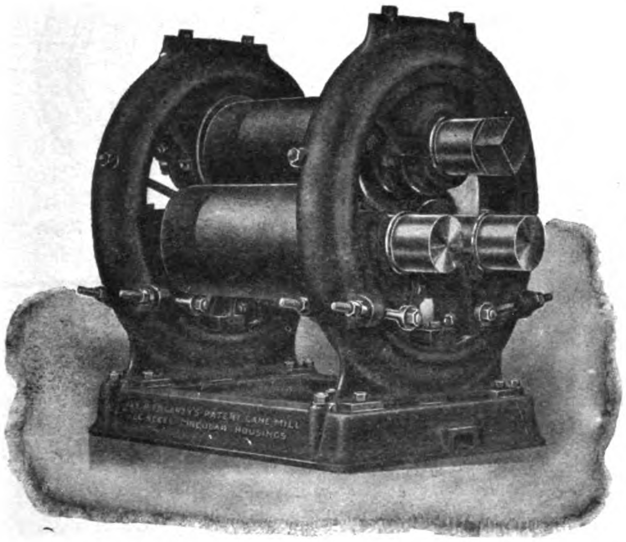

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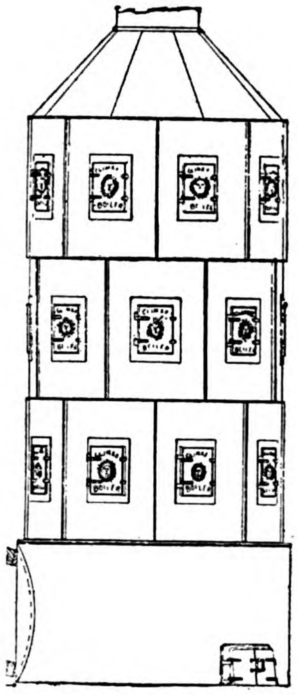

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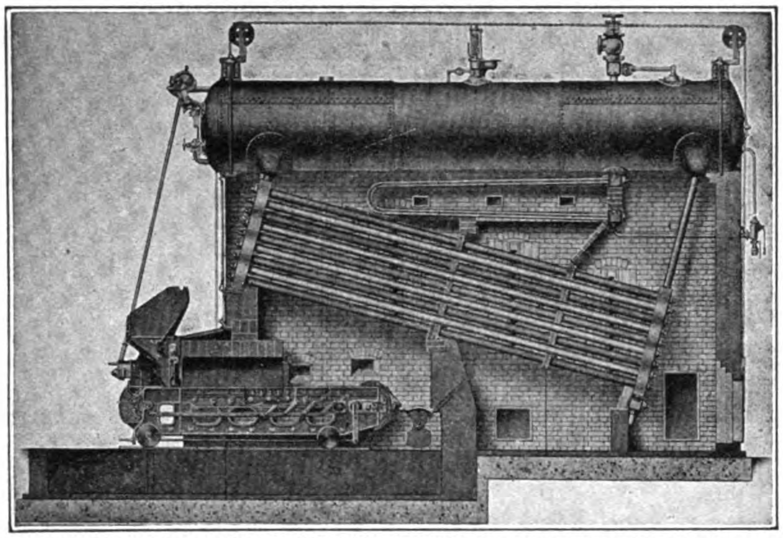

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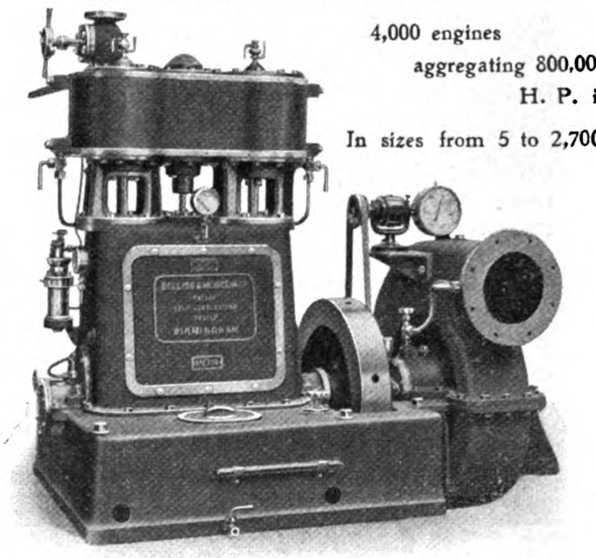

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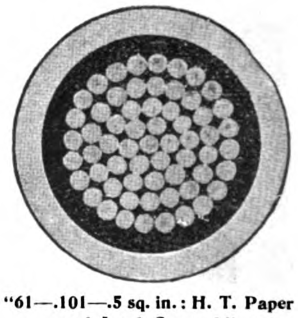

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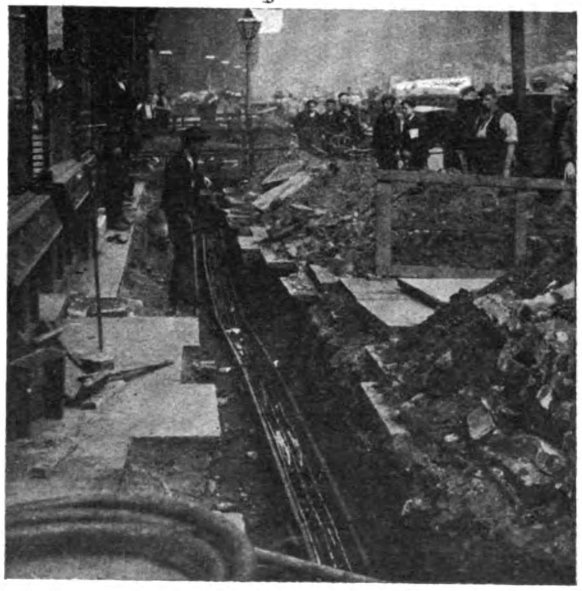

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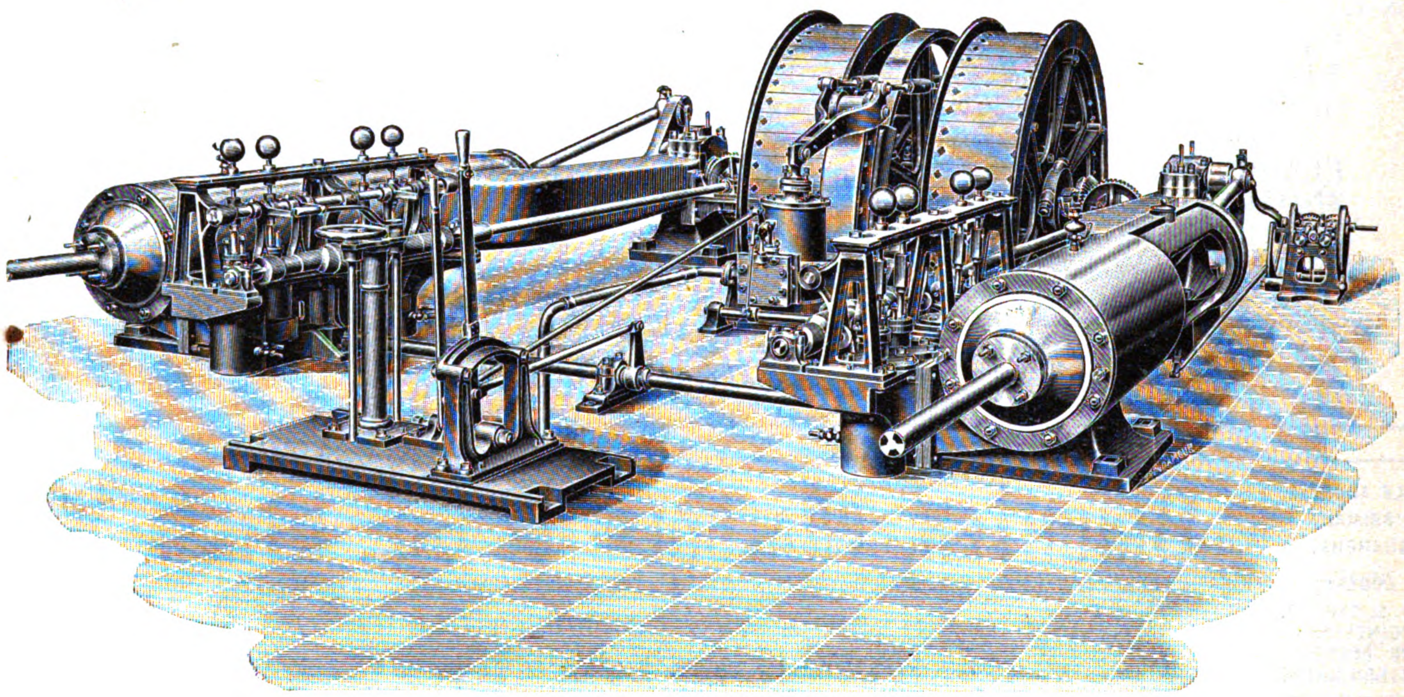

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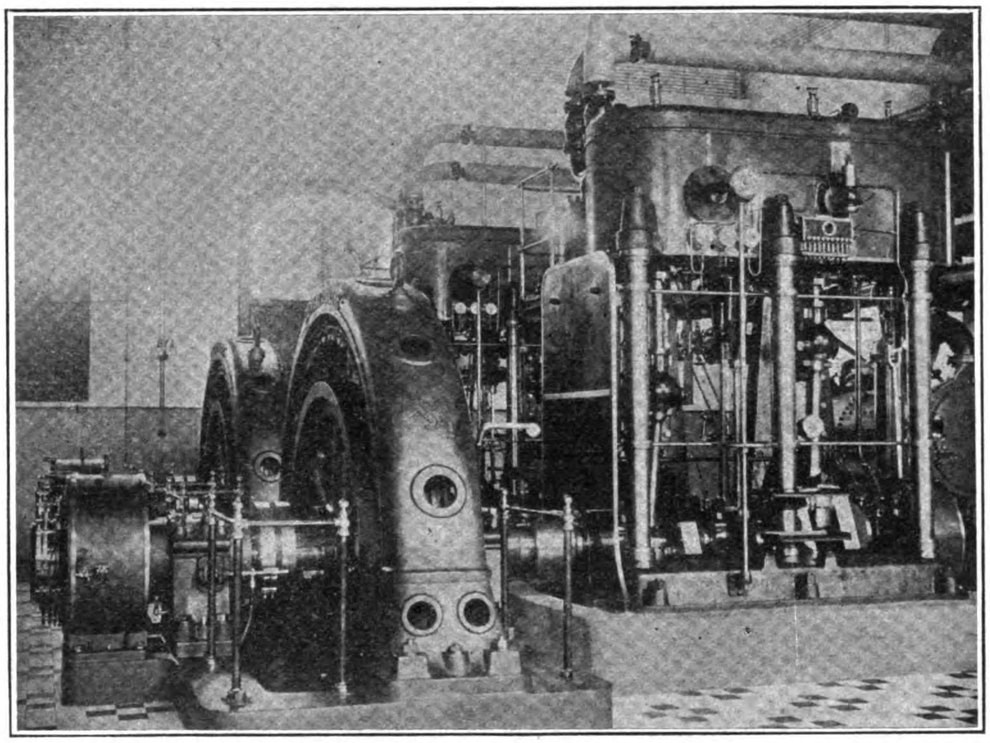

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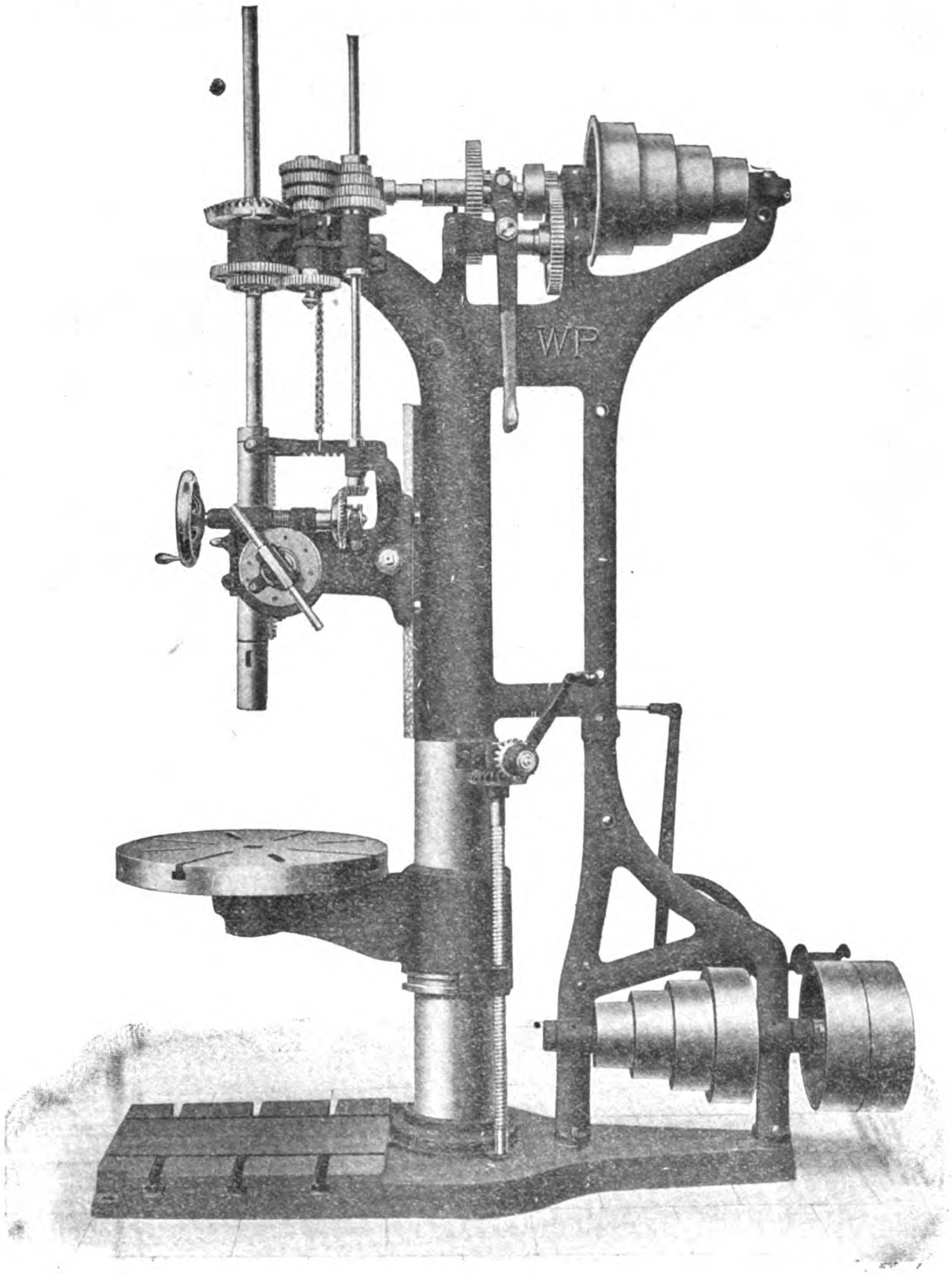

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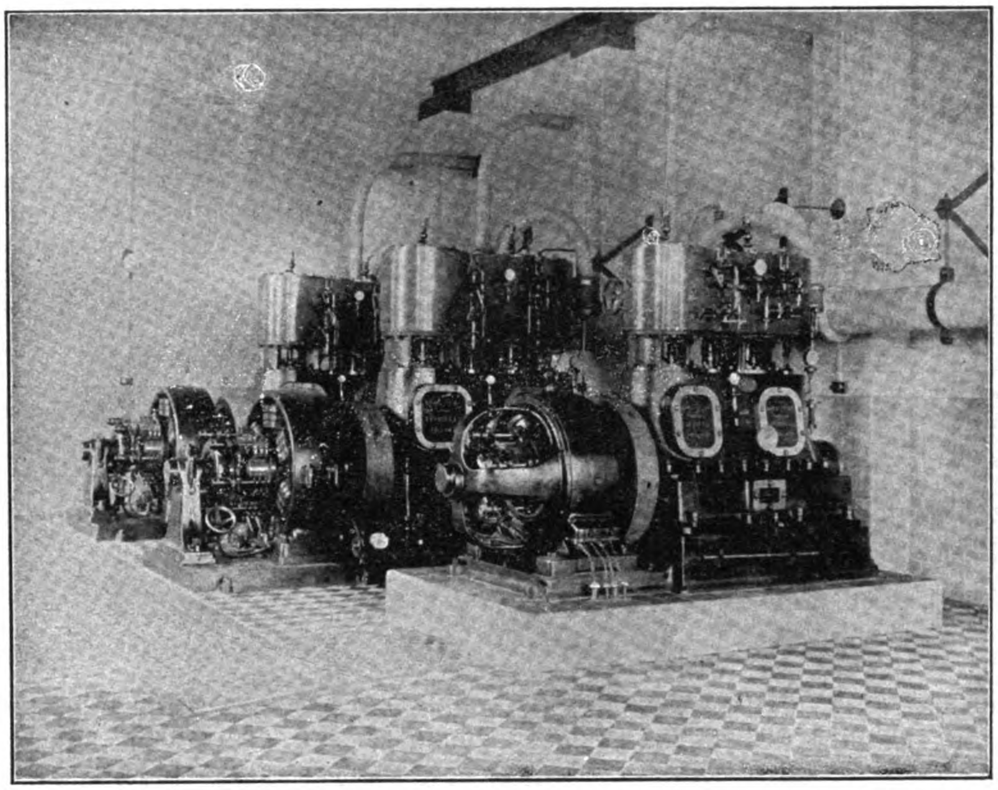

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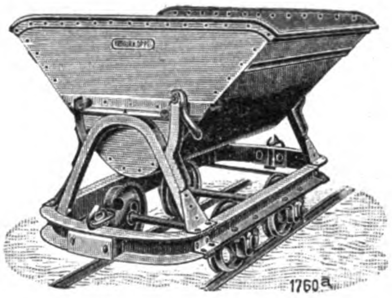

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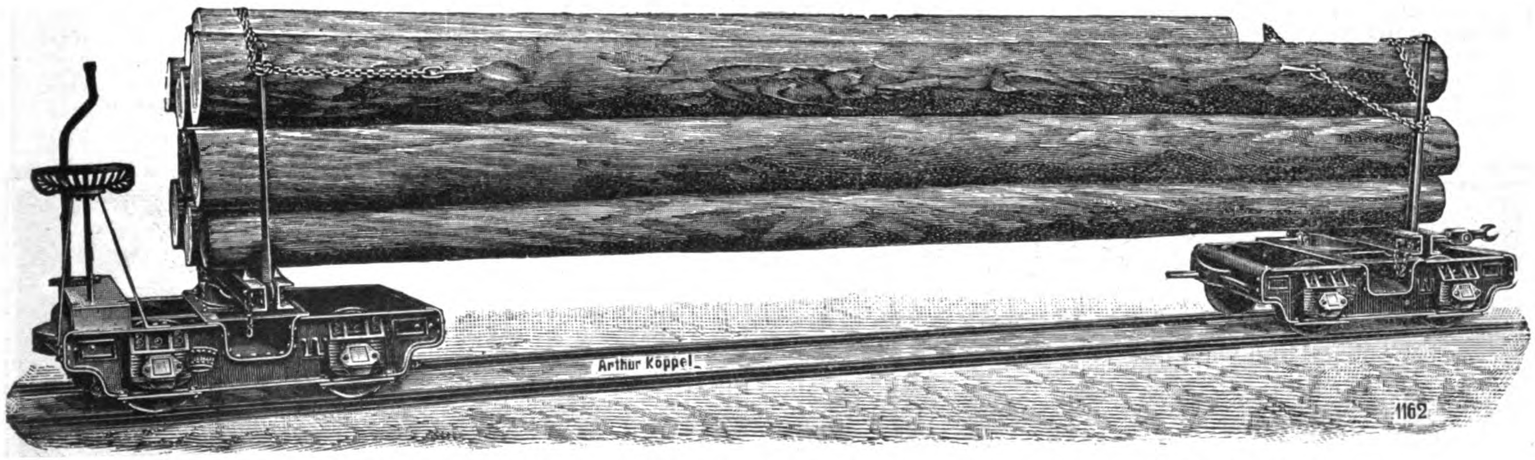

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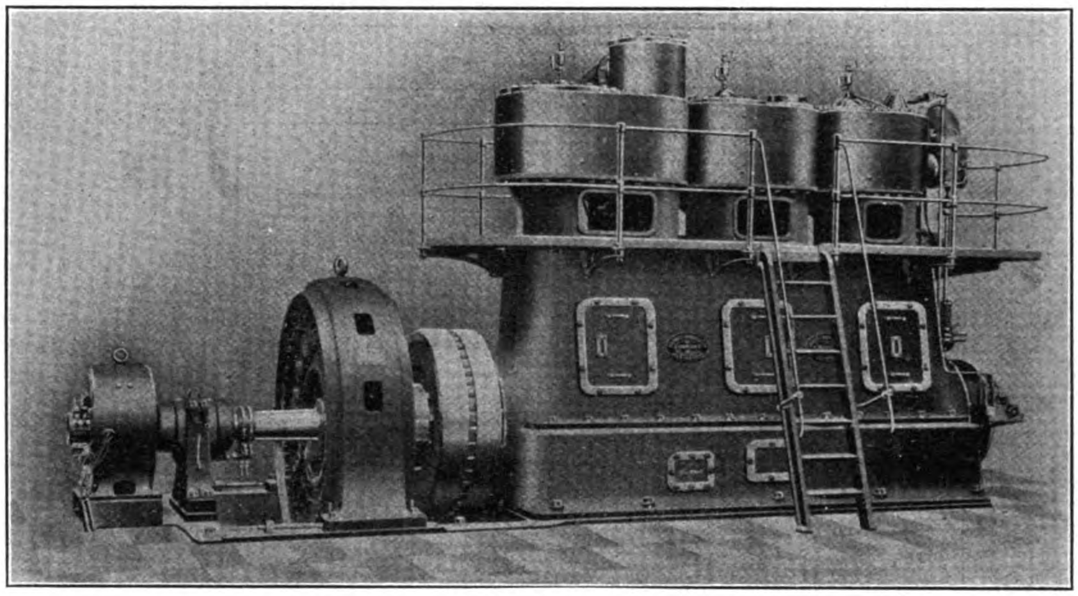

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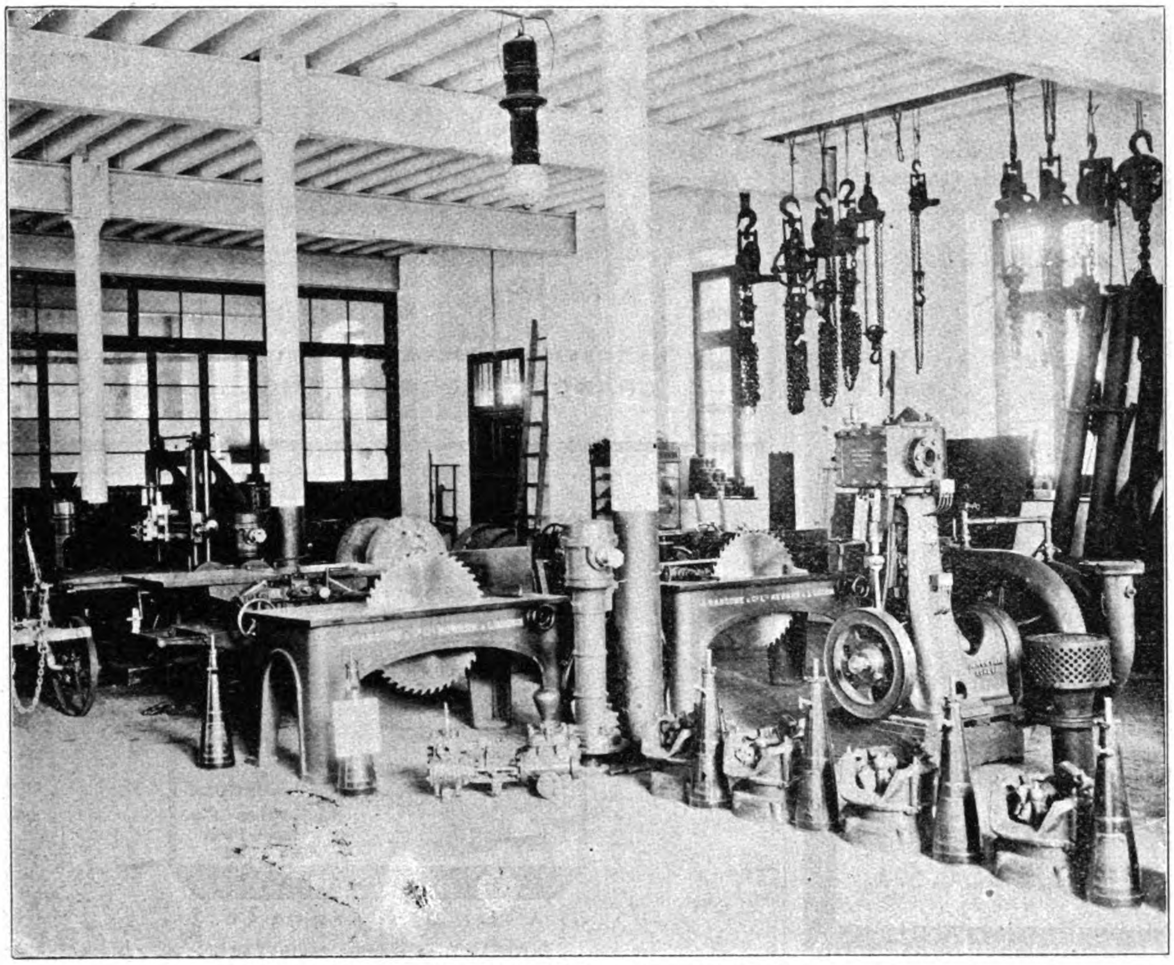

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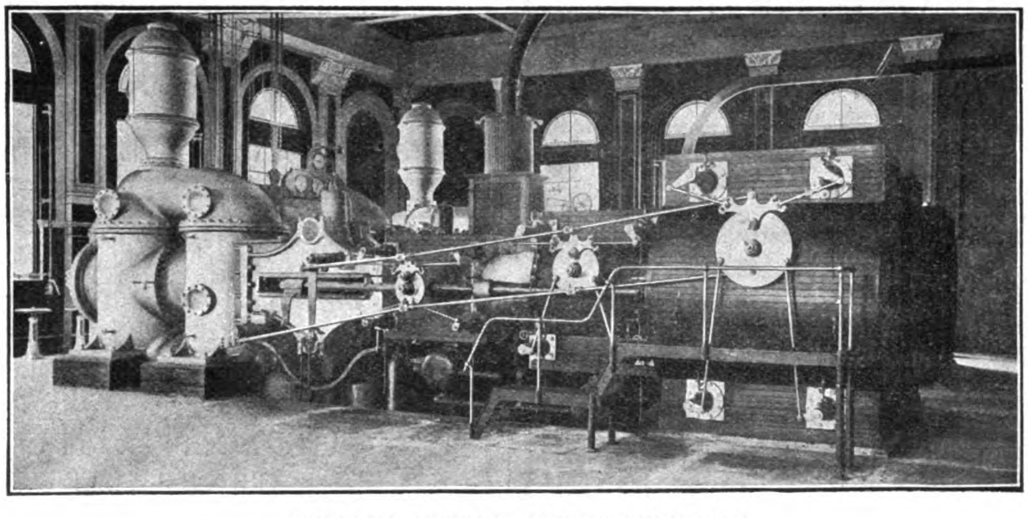

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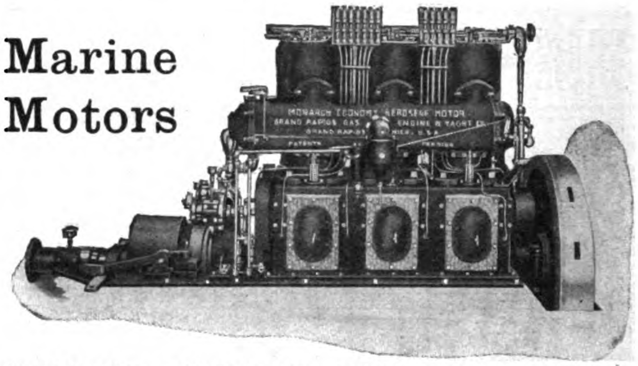

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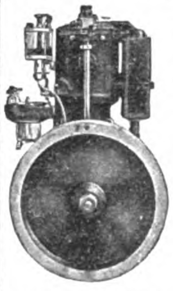

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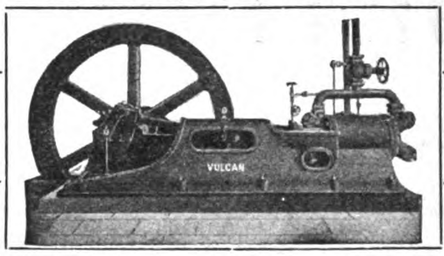
VUL  CAN

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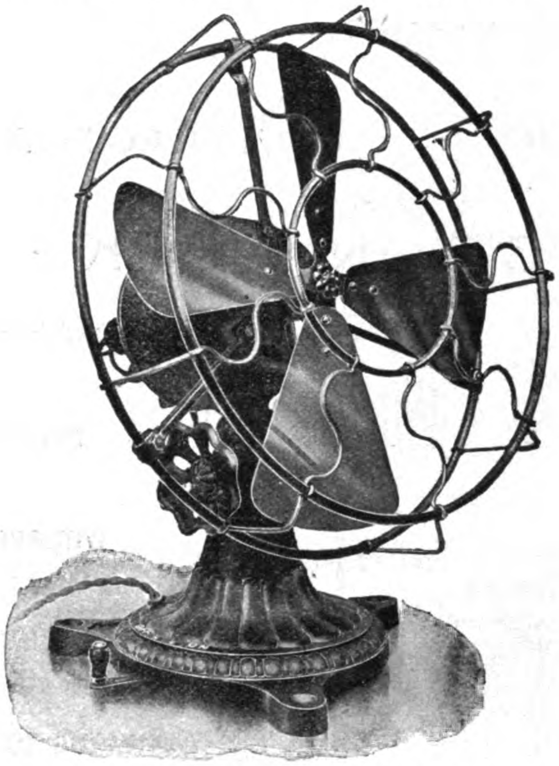

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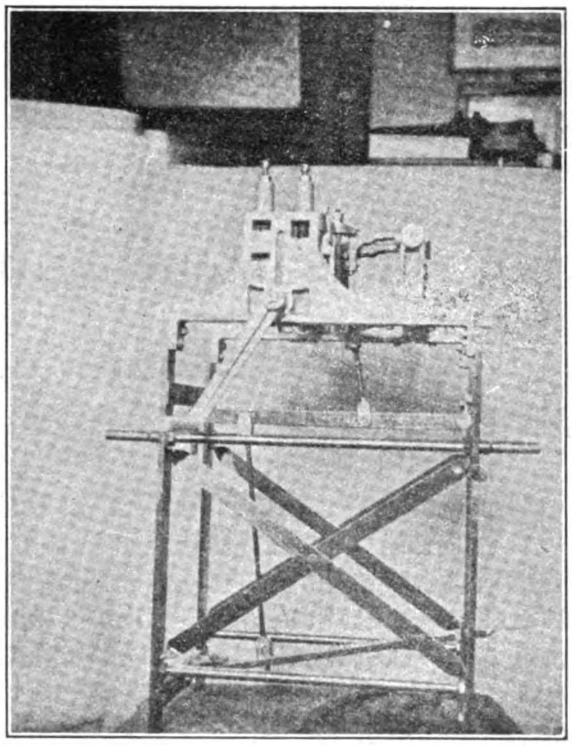

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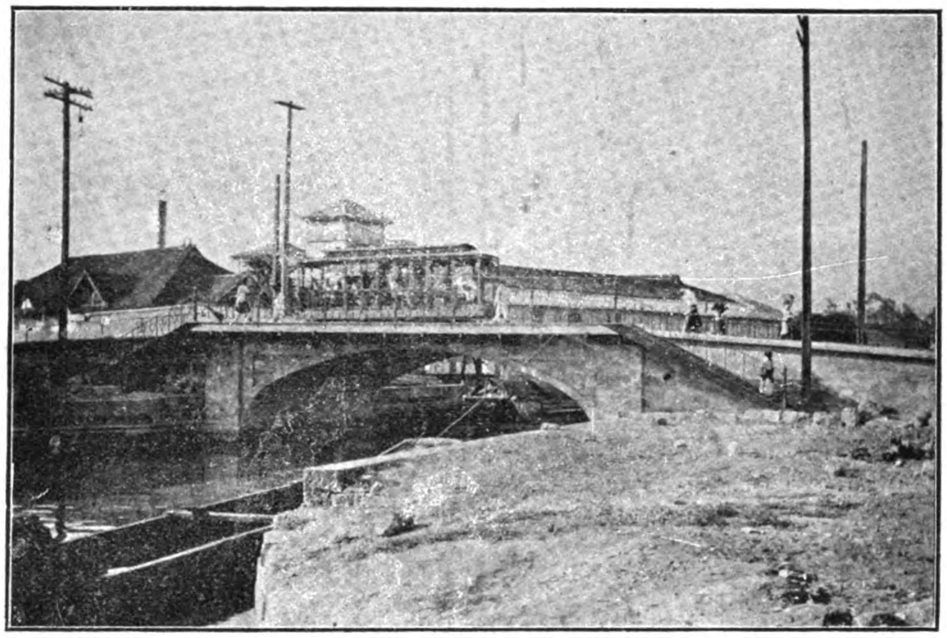

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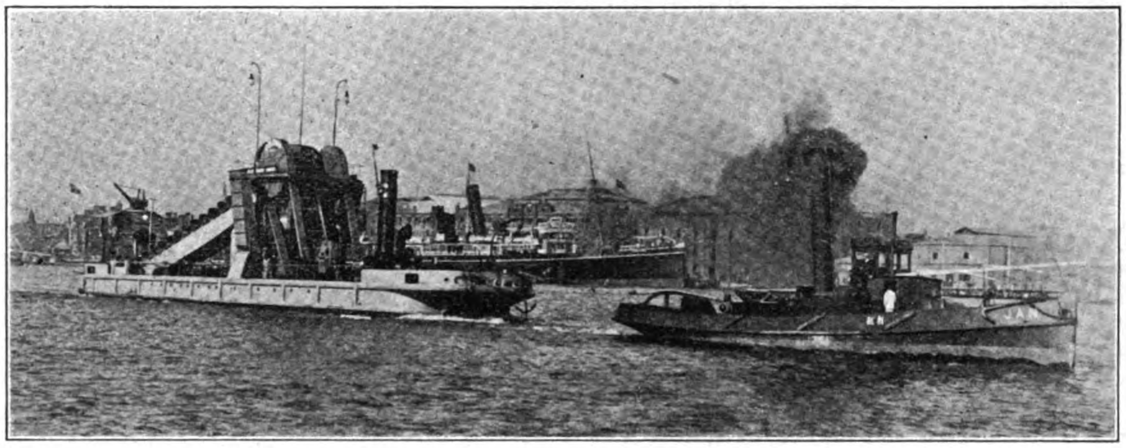

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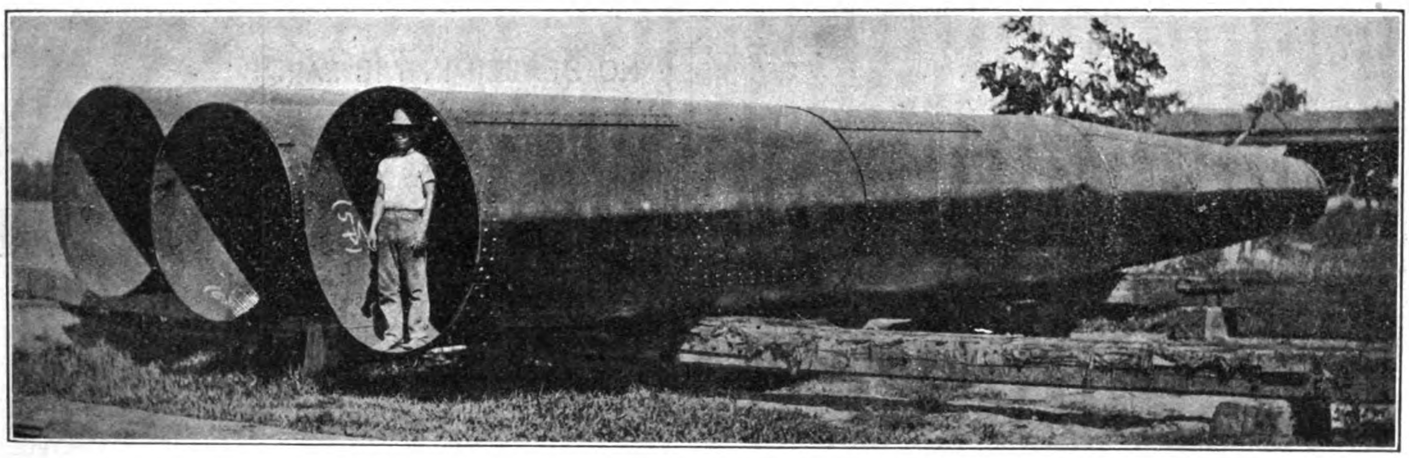

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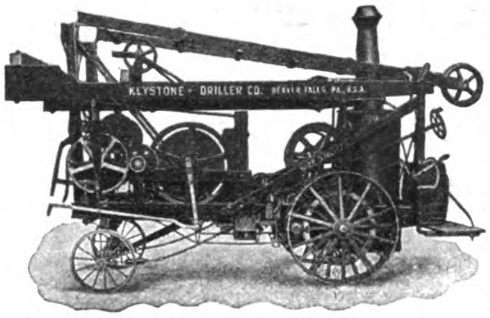

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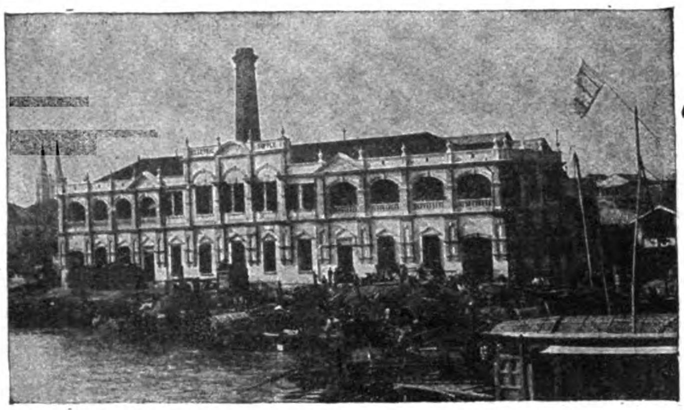

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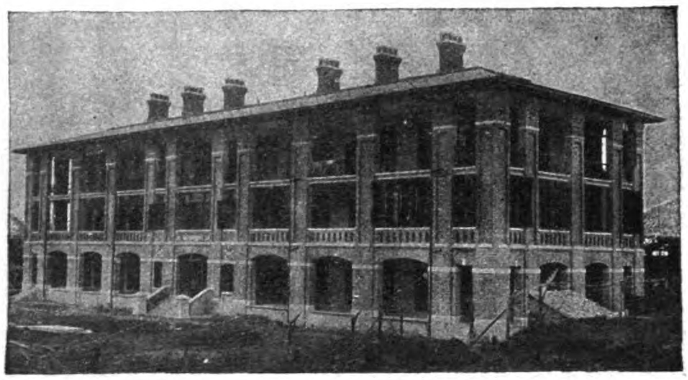

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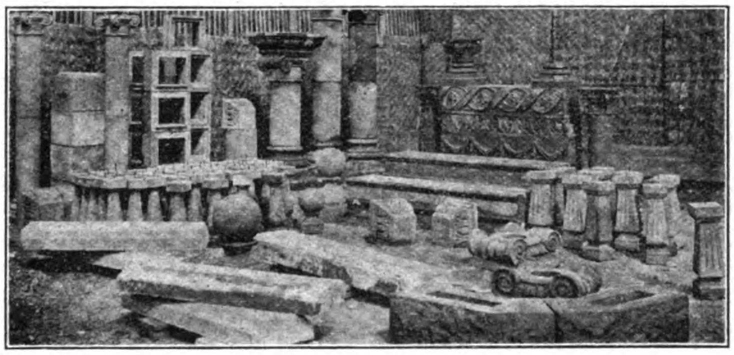

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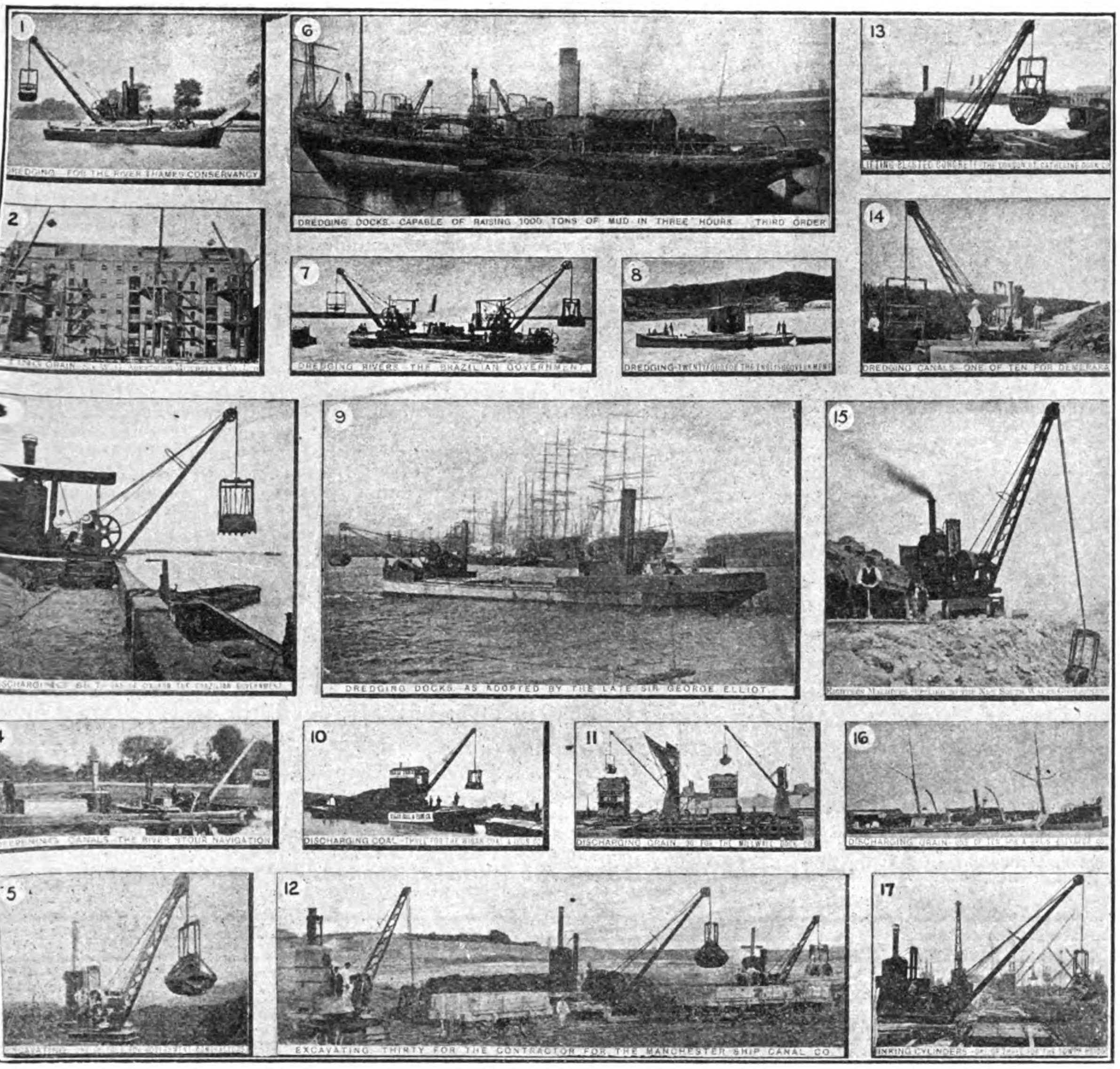

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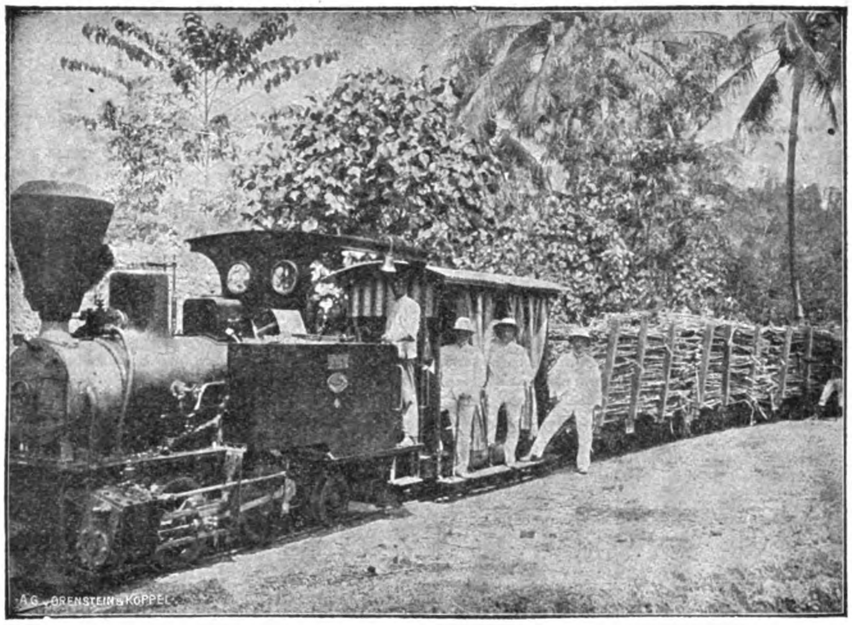

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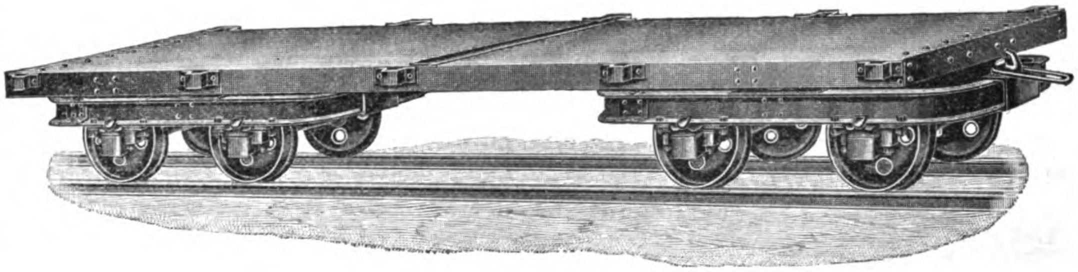

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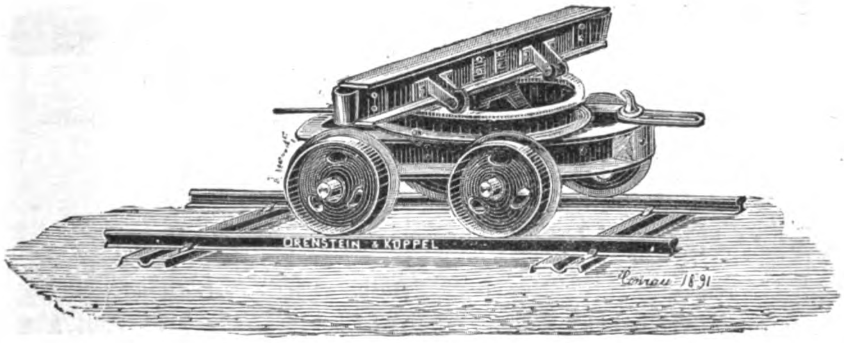

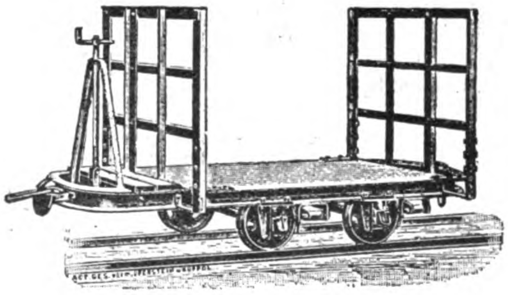

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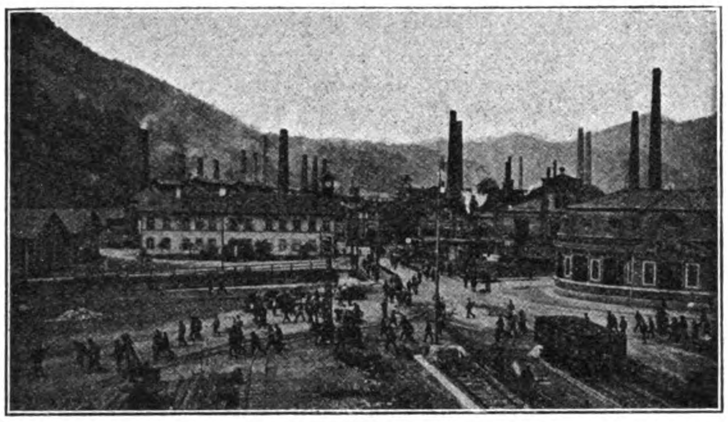
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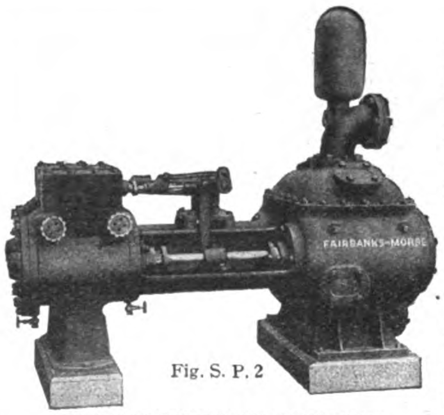

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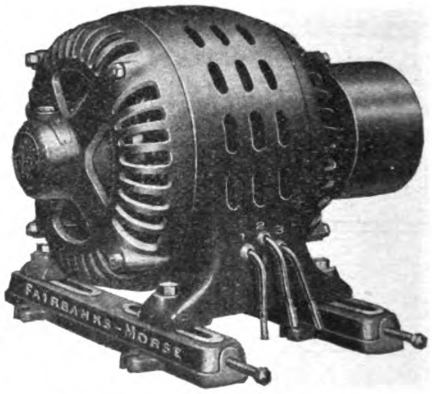

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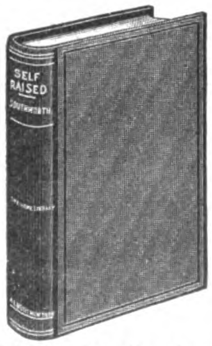

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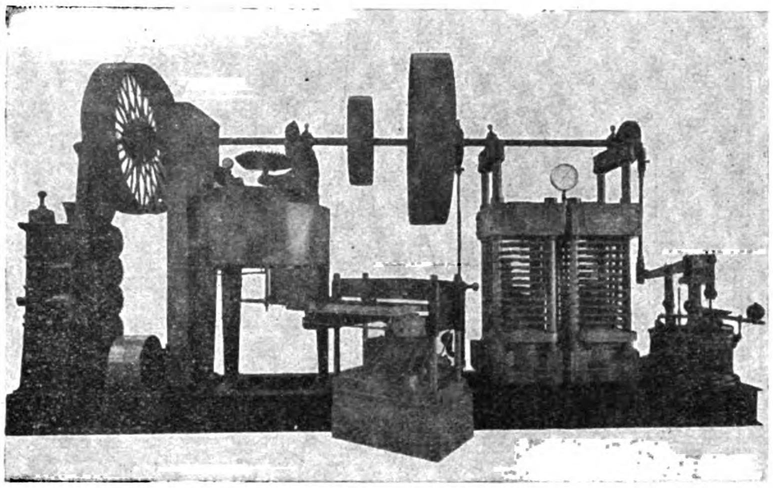

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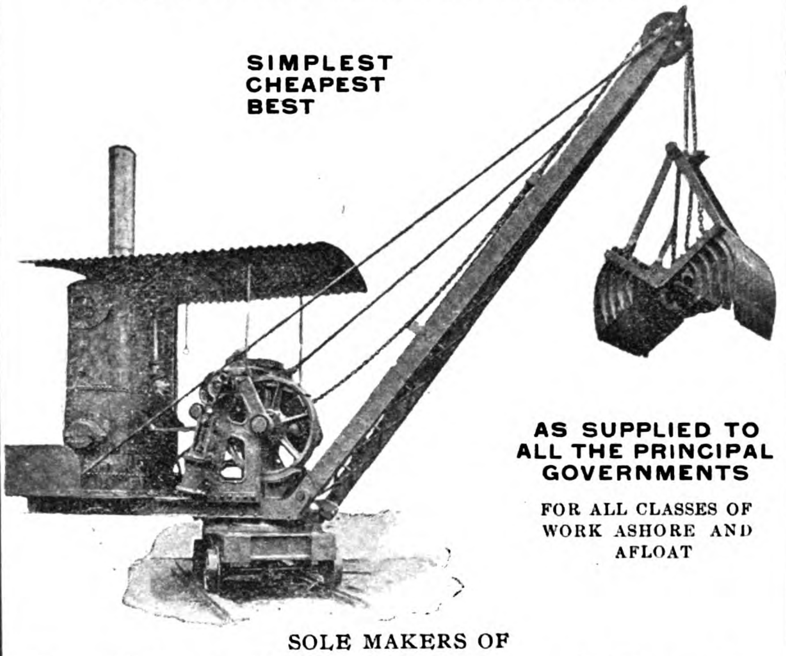

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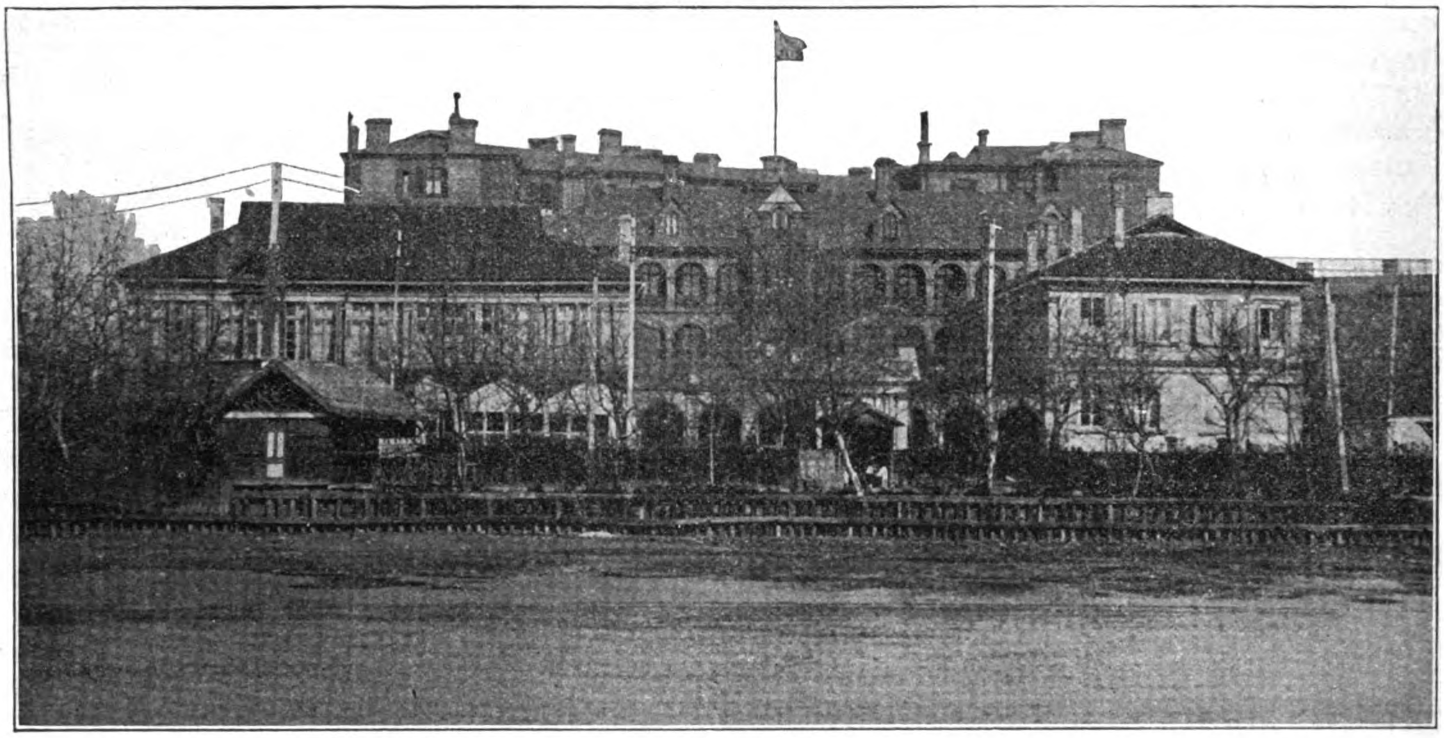

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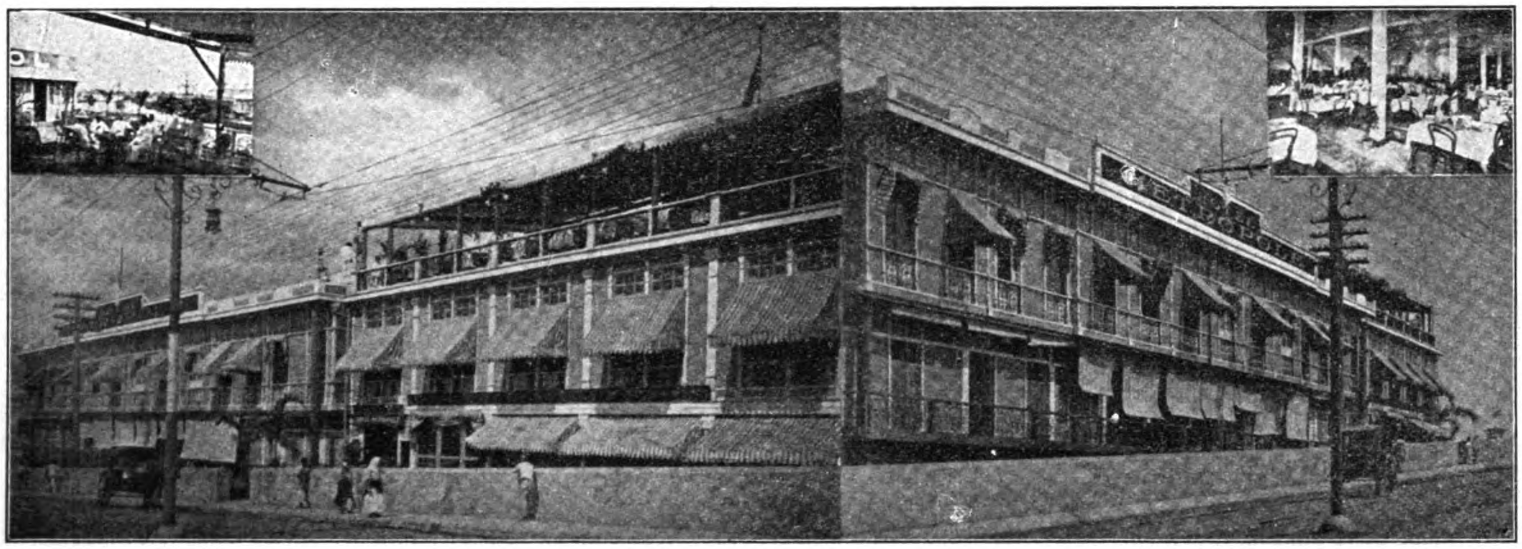

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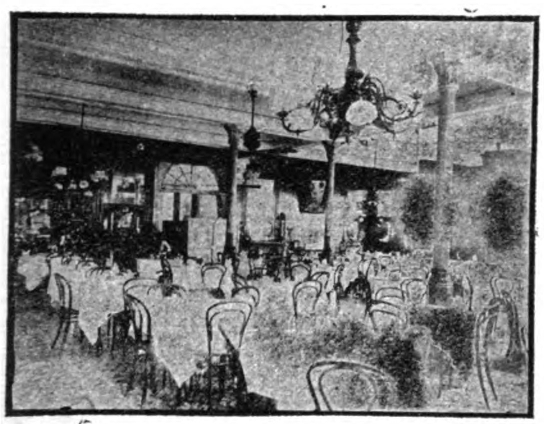

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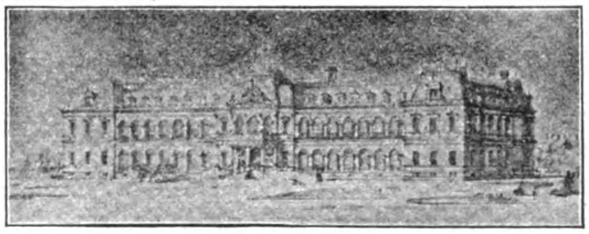

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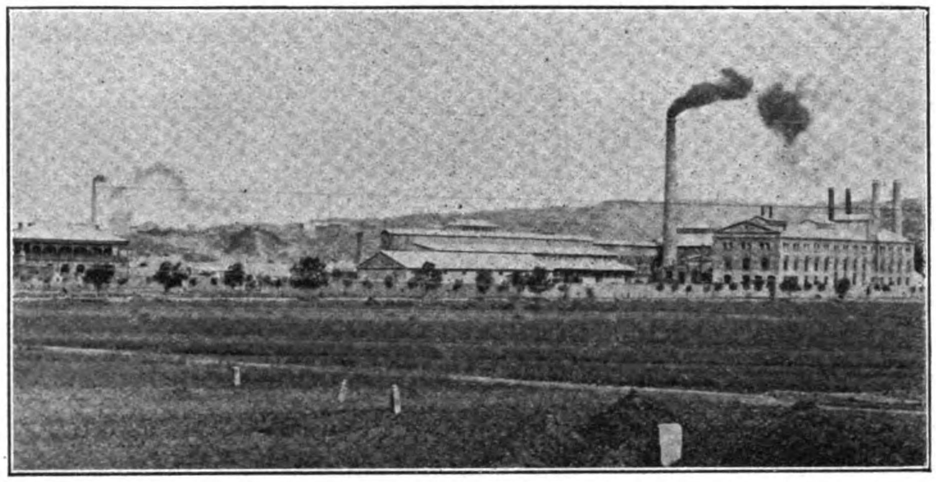

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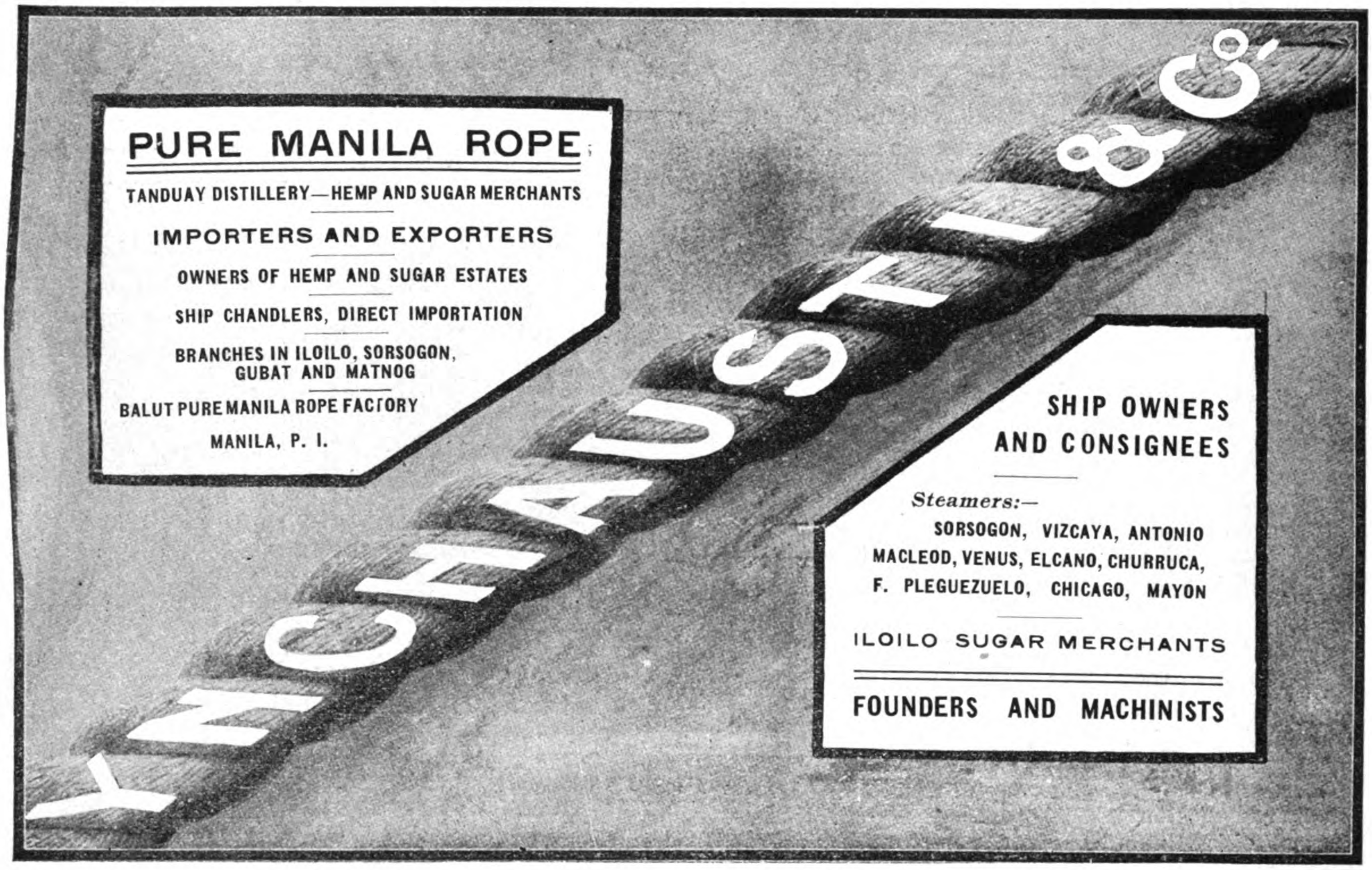

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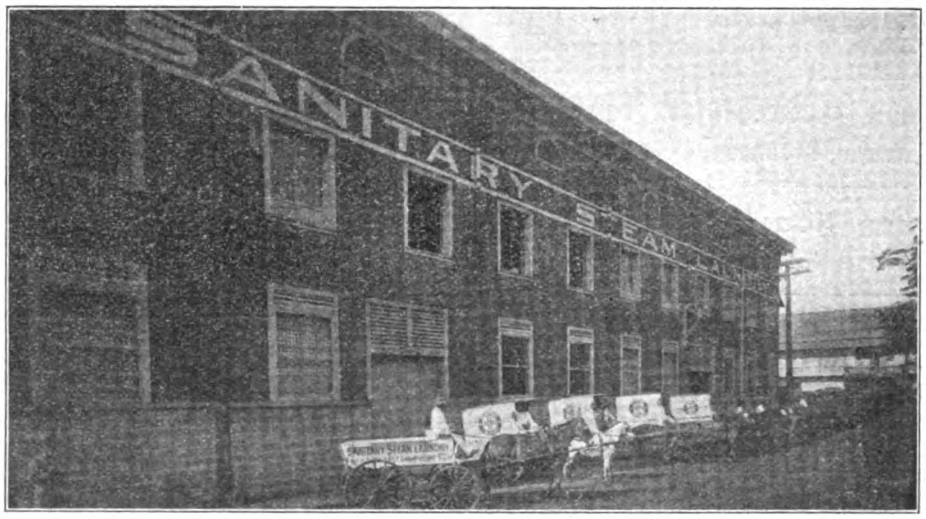

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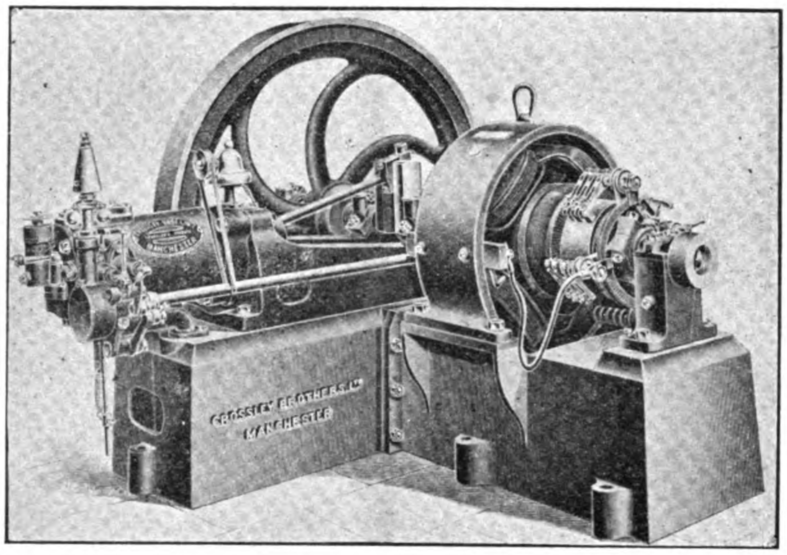

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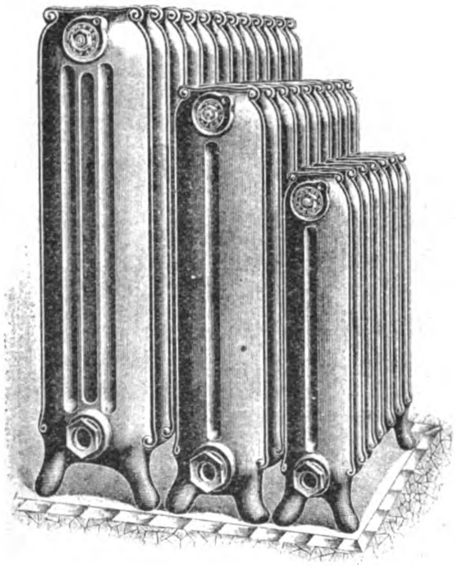

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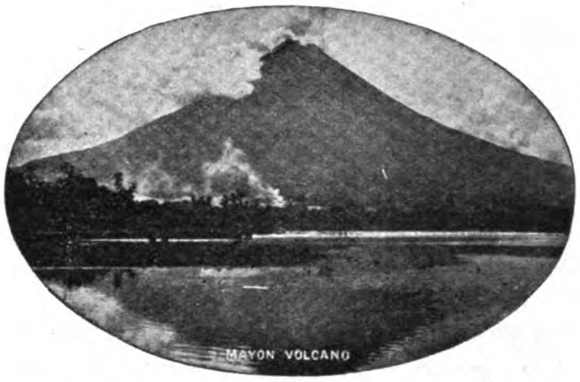

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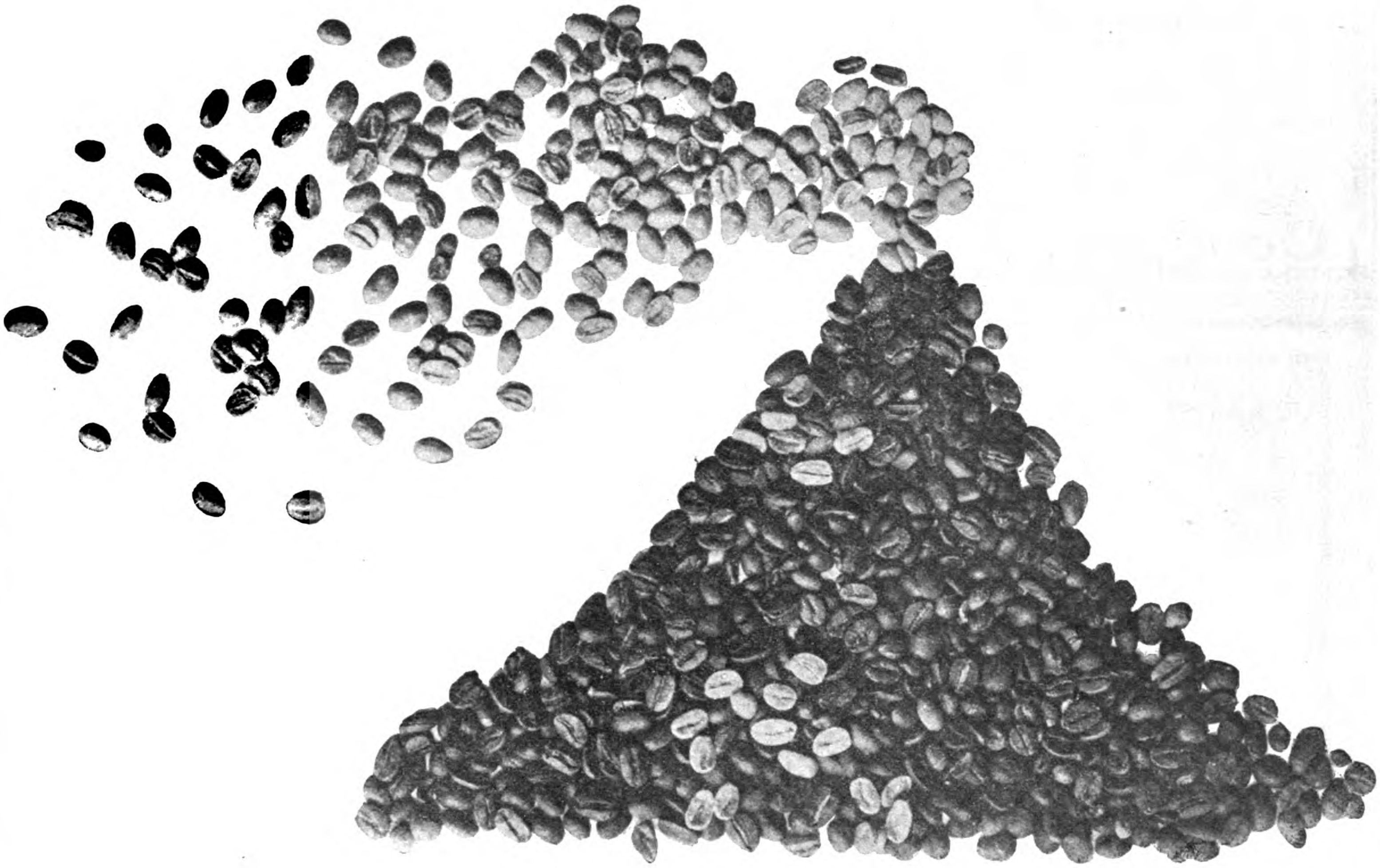

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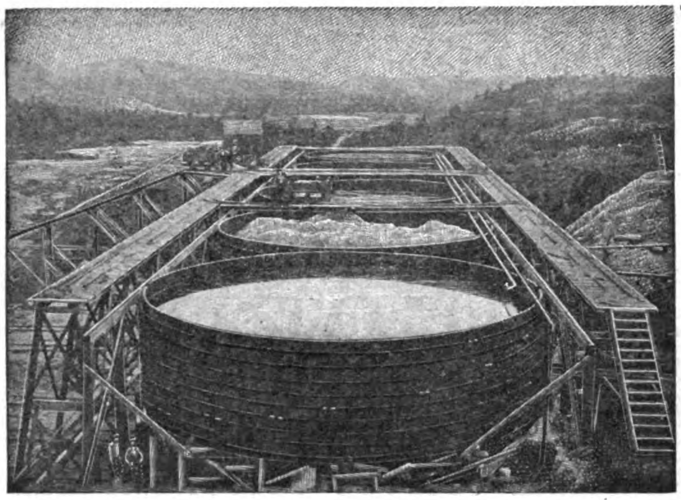

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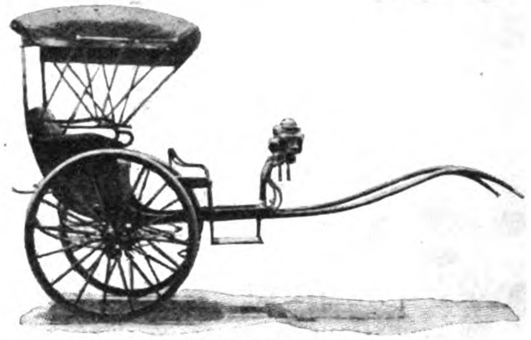

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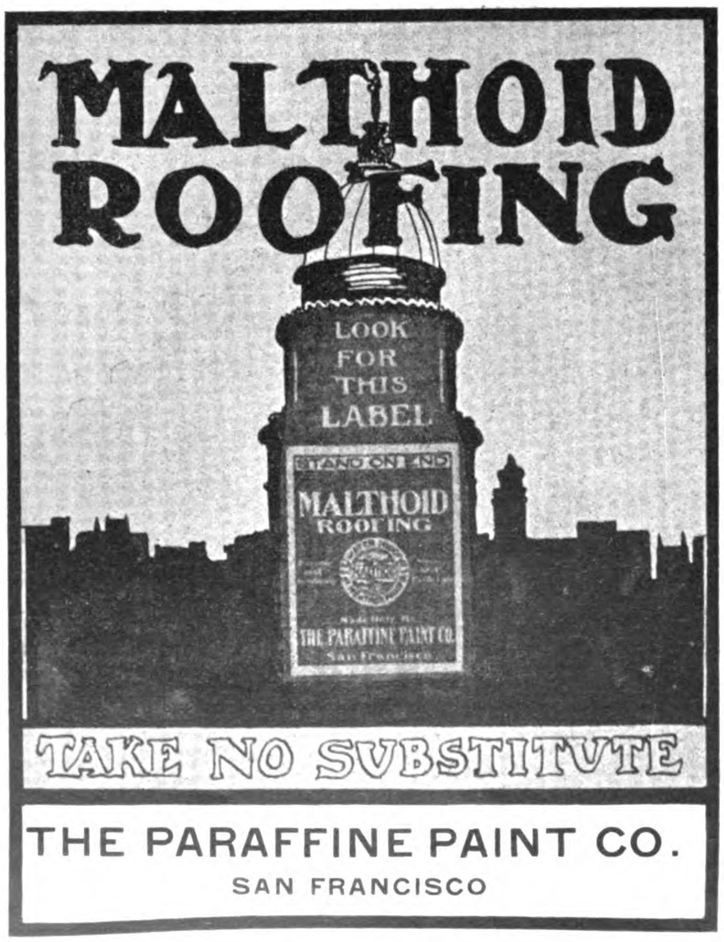

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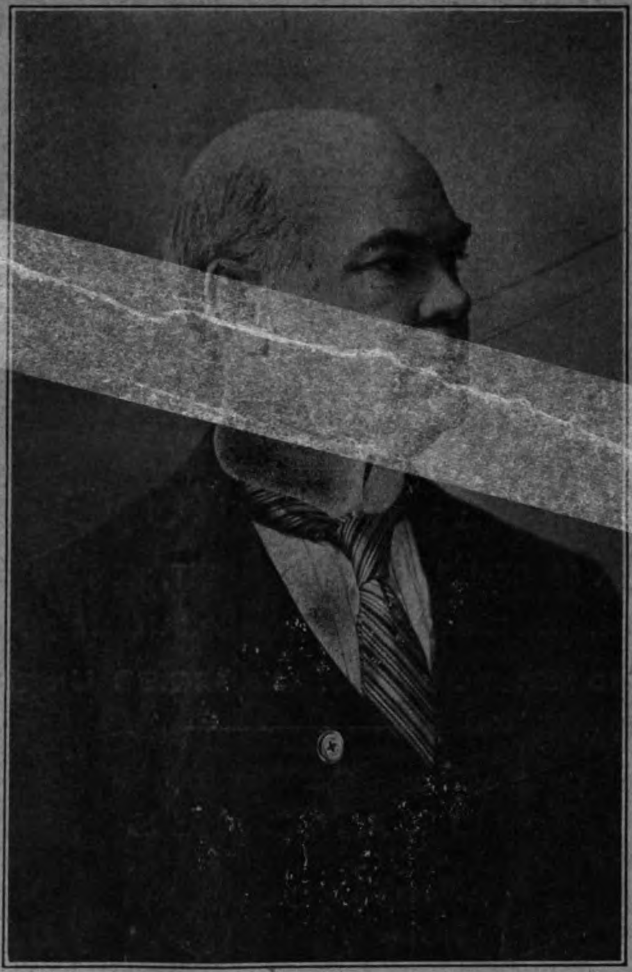

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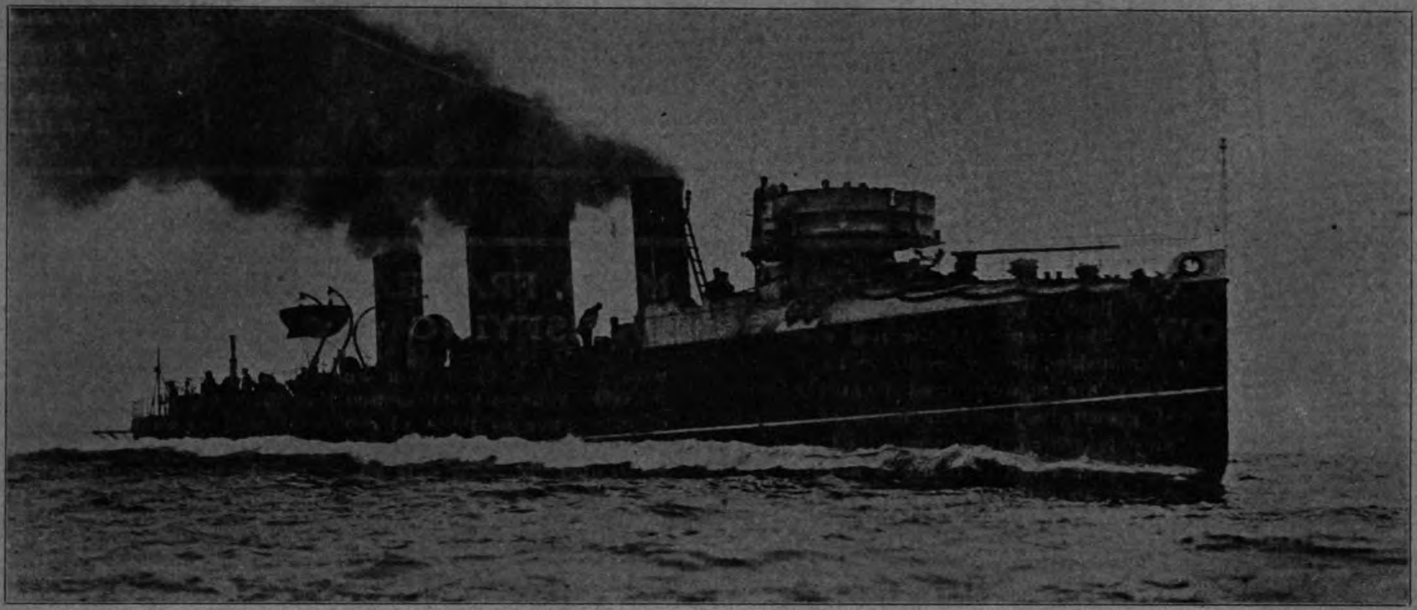

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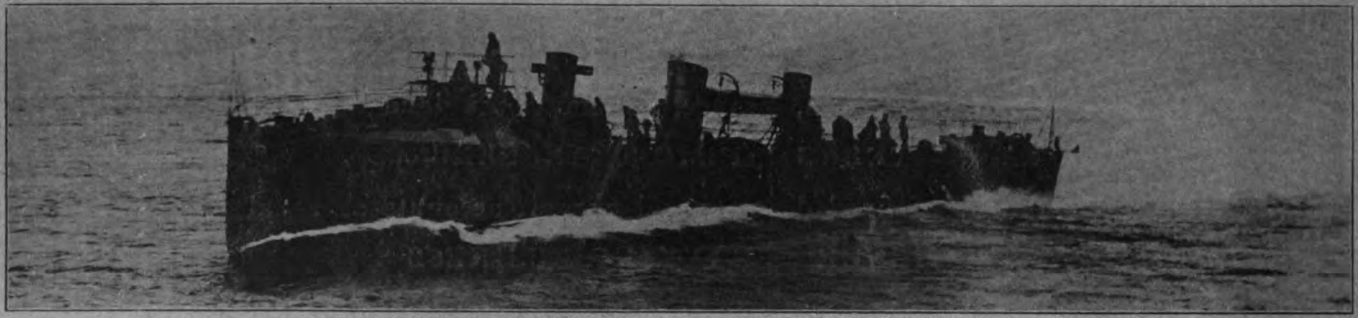

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